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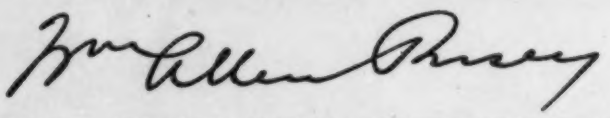

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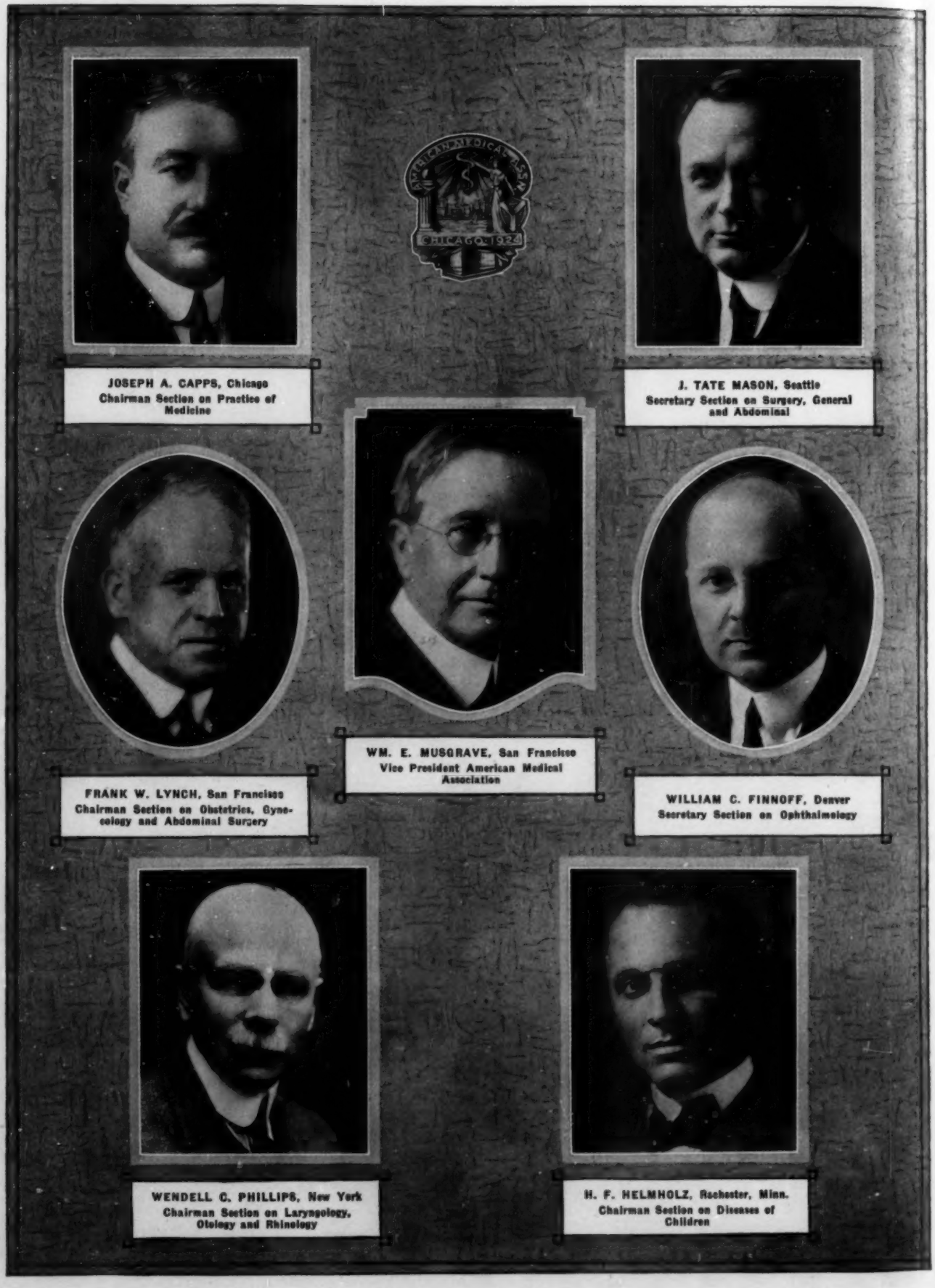
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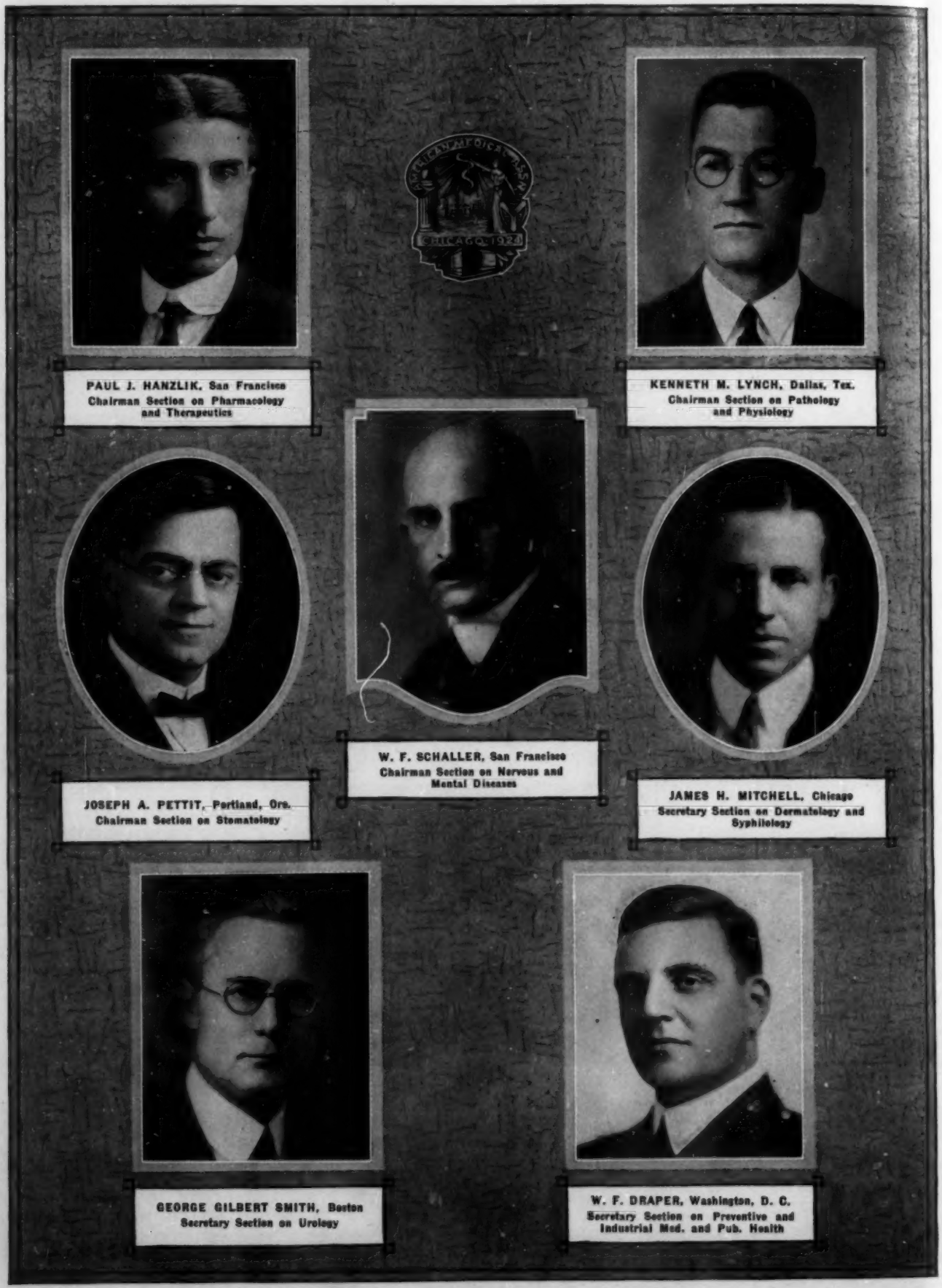
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CALCIFICATION OF THE PERICARDIUM

REPORT OF CASE DISCOVERED ROENTGENOLOGICALLY DURING LIFE *

JOHN B. YOUMANS, M.D.
AND
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It is only within recent years that calcification of the pericardium has been of any particular clinical interest. For many years it existed mainly as a pathologic curiosity, insusceptible to diagnosis during life, and discoverable only during a postmortem examination. Because of these circumstances, interest in this condition was centered largely about its morbid anatomy. Therefore, in spite of several studies of this condition, especially those of Diemer,[1] Jones [2] and Müller,[3] there has existed no general agreement as to its etiology, clinical significance or its relation to the other pathologic processes frequently associated with it, particularly its relation to changes in the other serous cavities and in the liver.

The advent of the roentgen ray and the improvement in its use has changed these circumstances. Following the suggestion of Diemer [1] in 1889 and of Simmonds [4] in 1908, that these cases might be discovered during life by means of the roentgen ray, Schwartz,[5] in 1910, reported the first case of calcified pericardium discovered roentgenologically in the living subject. Since that time, other cases have been reported and the condition has become one of clinical interest. The possibility of true diagnosis during life arouses the hope that the opportunity to study these cases clinically will result in discovering the true cause and nature of this interesting condition. It is with the idea of stimulating such studies that we report the following case.

REPORT OF CASE

History.—Mrs. C. G., a housewife, aged 62, came to the outpatient department of the University Hospital, April 17, 1923, complaining of "heart trouble." She stated that the onset of her symptoms had occurred about two years previous. At that time, she began to notice shortness of breath on exertion, palpitation and weakness. There had been slight swelling of the feet at times. There was present, however, no cough, no gastric symptoms and no nocturia. She had noticed no irregularity of the heart beats. There had been practically no increase in the severity of the symptoms since their onset.

The patient's past history was exceptionally clear. Her general health had been excellent, and, except for measles and pertussis as a child, she had had no acute infectious illness. At about the age of 40, however, while the patient was pregnant, she had had an enlargement of the glands on both sides of the neck. These had given no symptoms, but broke, discharged and finally healed. Five years before, she had fallen and struck her left chest in the region of the heart; this place had continued sore for three months.

She had been married twice, the first time at the age of 22, the second time at the age of 41. The first husband had died at the age of 28 of "hemorrhage from the nose;" the second was living and well. By her first husband, she had had four pregnancies. The first child had died at birth; another had died of tuberculosis at the age of 20. The other two were living and well. By her second husband, she had had two children, both of whom were living and well.

Her family history showed that her father died of "pneumonia" at the age of 39, and her mother of a general breakdown at 76. One sister had died of carcinoma of the stomach; two brothers, of acute infectious diseases, and one of apoplexy at 50; one brother living had stomach trouble.

Examination.—The patient was well developed, and there was evidence of some loss of weight. Slight cyanosis of the mucous membranes and slight orthopnea were present. Except for the loss of all teeth and some diffuse redness of the throat, the examination of the head was negative.

The neck showed marked distention of the jugular veins, which were also exceedingly hard and cordlike. No abnormal pulsations were seen.

The chest was well formed, and expansion was active and equal on the two sides. The lung findings were normal except for an occasional, diffuse and inconstant squeaking râle. Examination of the heart revealed the important findings. The apex impulse was not visible or palpable, nor were there any abnormal pulsations. No thrills were felt. Percussion revealed that the heart was enlarged to the left considerably beyond the midclavicular line. There was no enlargement to the right, but the retromanubrial dulness seemed increased in width. Auscultation revealed that the sounds at the apex were faint and weak, and there were heard occasional extrasystoles. The second pulmonic sound seemed slightly accentuated at the base. Over the entire precordium, but most marked at the apex and aortic area, was heard a systolic murmur seeming to have two components, a rather blowing element common to mitral systolic murmurs and a "closer," high-pitched, musical, or at times scratchy, sound which partook partly of the character of a friction rub. There was some sclerosis of the peripheral vessels, and the blood pressure was: systolic, 140; diastolic, 100.

The abdomen was lax and without spasm or tenderness. There were no masses to be seen or felt. The spleen was not felt, but there was a questionable enlargement of the liver.

Examination of extremities was negative, and edema was definitely absent. The reflexes were normal. The urine contained a trace of albumin, but was otherwise normal.

A diagnosis was made of chronic myocarditis with early cardiac failure, and an electrocardiogram, roentgenogram of the chest and an orthodiagram were requested. The electro-

* From the Department of Internal Medicine and the Department of Roentgenology, University of Michigan Medical School.

1. Diemer, F.: Ueber Kalkablagerungen an den Serösen Hauten des Herze, Ztschr. f. Heilk. **20**: 257, 1899.
2. Jones, A. E.: Calcification of the Pericardium, Tr. Path. Soc. London **52**: 181, 1901.
3. Müller, E. F.: Pericarditische Verkalkungen, Fortschr. a. d. Geb. d. Röntgenstrahlen **25**: 231, 1918.
4. Simmonds: Ueber den Nachweis von Verkalkungen am Herzen durch das Röntgenverfahren, Fortschr. a. d. Geb. d. Röntgenstrahlen **20**: 371, 1908.
5. Schwartz, G.: Wien. klin. Wchnschr. **23**: 1823 (Dec. 15) 1910.

cardiogram showed auricular extrasystoles, an inversion of the T wave, and myocardial changes. The roentgenologic examination revealed the findings given below.

The patient was referred to the roentgen-ray department for fluoroscopic studies of the heart and an orthodiagraphic tracing. During the preliminary fluoroscopic examination, the following very interesting condition was noted. The normal hazy outline of the ventricular border of the heart, the apex, and the lower margin, which is usually obliterated by the shadow of the diaphragm, was replaced by a relatively thin, radiopaque shadow of lime density, which the observer inferred to be calcification of the pericardium.

The cardiac movements, as seen on the fluoroscopic screen, seemed to be impaired very slightly, if at all. On closer examination of the heart and great vessels with rotation to several positions, the shadows of lime density presented a patchy appearance rather than a uniformly dense radiopacity. Furthermore, the calcareous deposits were confined to the ventricular areas; as far as could be noted at the time of the fluoroscopic examination, the auricular area did not appear to be involved. The most prominent area of calcification occupied a position on the posterior and inferior surface of the left aspect of the cardiac outline, and from this area irregular projections of lime salt deposits were scattered over the ventricular pericardium.

Fig. 1.—Left oblique: Arrows indicate area of calcification.

The examination of the entire percardial sac was necessarily incomplete, as the right border of the heart was not distinctly seen, owing to the collection of some fluid in the right pleural cavity, which extended in a curvilinear direction from about the junction of the right auricle and the great vessels to the level of the seventh rib in the midaxillary line. Careful examination of the great vessels showed no definite deviation from the normal condition for a person of the patient's age.

In order that a satisfactory record of the case might be preserved, the usual stereoscopic set of chest films was taken with the patient in the standing position; in addition, two oblique exposures were made, one with the left breast toward the film and one with the right breast toward the film. The illustrations show the condition that has been described as existing at the time of fluoroscopy.

Examination of the stereoscopic chest films showed no other apparent pathologic changes in the lungs or in the remaining thoracic structures. Subsequent examination revealed very little change in the cardiac and pulmonary findings.

It was our opinion that the orthodiagraphic tracing showed evidence of a moderate degree of cardiac enlargement.

Treatment.—The patient did not wish to enter the hospital, so she was sent to her home with advice as to the restriction of activities, and in regard to rest and diet. She was advised to take small doses of digitalis.

Second Admission.—She returned to the outpatient department, July 6, complaining of fluttering of the heart, shortness of breath, bloating and general weakness. She stated that, after leaving the hospital, she felt well until six weeks before her second visit, July 6. At that time, she had begun to notice bloating of the abdomen and swelling of the feet. Later, distress and fulness after eating were noticed, together with increasing weakness and shortness of breath.

On examination, the following changes in her physical state were noted: The orthopnea appeared to be more marked, but there was no increase in the cyanosis, and the jugular veins were not more distended. The thorax was asymmetrical, the right side being more prominent than the left, and there was diminished expansion on the right. There was diminished tactile fremitus over the right base. The left lung was hyperresonant, while the right varied from dull to flat from the fourth rib to the base. Voice sounds were harsh over the left lung, while over the right there were decreased breath sounds and voice sounds from the fourth rib down. There was no change in the heart findings, except that the extrasystoles seemed more frequent. The abdomen was full, with some bulging in the upper right quadrant. Signs of free fluid were present. There was slight pitting edema of both legs. It was thought that there had been an increase in cardiac failure, with the development of a hydrothorax and an ascites, and the patient, advised to enter the hospital, did so.

The day following admission, an abdominal paracentesis was done and 2,930 c.c. of a straw colored, slightly cloudy fluid was obtained. Examination of the fluid revealed: specific gravity, 1.020; reaction, acid; albumin, 30 gm. per liter; sediment, —; 300 red blood cells, 120 white blood cells, per low power field. Guinea-pig inoculation of the fluid yielded negative results. Following the removal of the fluid, the liver was palpable 4 cm. below the costal border.

The patient remained in the hospital eight days and improved considerably with rest and the paracentesis. During her stay, the amount of albumin, hyaline casts and granular casts in the urine varied from none to a moderate amount, and there was present a moderate number of white and of red blood cells. The specific gravity ranged from 1.006 to 1.029. The hemoglobin was 75 per cent.; the red cells, 3,640,000, and the white cells, 7,400. The differential count was normal. A basal metabolism determination was made, which was minus 16 per cent. The electrocardiogram again revealed auricular extrasystoles, with a P-R interval of 0.2 second. Roentgenograms showed essentially the same pictures as before. The patient was discharged considerably improved, with the instructions previously received.

Following her discharge from the hospital in July, she felt well for about four months. Then the abdomen began to enlarge again, and, in the course of four or five weeks, caused her considerable distress. In addition, she developed a nonproductive cough and some swelling of the legs.

Third Admission.—She was readmitted Dec. 17, 1923, when examination revealed much the same findings as it had at the time of her previous admission, plus the finding of auricular fibrillation, which was later confirmed by electrocardiogram. An abdominal paracentesis was performed, and 2,900 c.c. of a clear yellow fluid (specific gravity, 1.015; albumin, 32 gm. per liter; cells, 720 per c.c.; 90 per cent. lymphocytes), having the mixed characteristics of a transudate and an exudate, was removed. The patient was digitalized and discharged feeling much improved.

Fourth Admission.—She returned Feb. 29, 1924. She stated that she felt somewhat worse than she had at the times of her previous admissions. The physical findings were essentially the same as before. There was considerable abdominal distension and a considerable amount of free fluid. The heart was normal in rate and fairly regular, but the electrocardiogram showed it to be still fibrillating. The rate of the circus rhythm was higher, possibly owing to the use of digitalis. The kidneys were able to concentrate the urine satisfactorily, although there was a trace of albumin and a few hyaline and granular casts. The abdomen was tapped with some difficulty (adhesions?), and 4,320 c.c. of straw colored fluid (specific gravity, 1.016; albumin, 12 gm. per liter) was removed. The pleural cavity (right) was tapped for the first time, and 850 c.c. of straw colored, slightly cloudy fluid was removed. The specific gravity was 1.010; albumin, 20 gm. per liter; there were a few cells, mostly large lymphocytes. After the removal of the pleural fluid, the patient was examined with the fluoroscope, and plates were made, but apparently because of the great thickness of the pleura, no increase in detail over that secured by the previous plates was obtained. The patient was discharged, March 4, feeling much improved.

COMMENT

With the development of the possibility of diagnosing calcification of the pericardium during life, interest in this condition centers mainly about the question of its etiology and its relation to changes in the other serous cavities and in the liver that accompany it in the great majority of cases. So closely associated are these two questions that they are to all intents and purposes one, and as such will be considered in the following discussion, which is based on a study of this and 104 reported cases, ninety-four of which were studied at necropsy.[6]

Calcification, in general, occurs in dead or dying tissue and in the products of inflammation due to any cause. Such calcifications are found frequently and accidentally at necropsy in any tissue, and are generally not sufficiently constant or characteristic to be of any particular clinical interest.

There exists, however, a group of cases in which there is a definite and well marked calcification of the pericardium, associated with quite constant changes in other tissues. During life, these cases exhibit a characteristic clinical syndrome, which, with the pathologic changes, warrant their inclusion in a definite disease group.

Fig. 2.—Right oblique: Arrows indicate area of calcification.

To summarize the findings briefly, these cases show pathologically an obliterative pericarditis with calcification, frequently so marked as to deserve the term "armored heart." In addition, there is usually found chronic inflammation of the pleura or peritoneum or both, and all grades of changes in the liver, from simple chronic passive congestion to true atrophic cirrhosis, including perihepatitis and occasional perisplenitis. The heart, as a rule, shows either no abnormal findings or else degenerative changes in the muscle. Occasionally, the calcification extends into the heart muscle itself. Clinically, these cases exhibit characteristically, in the early stages, the picture of cirrhosis of the liver; marked and frequently recurring ascites without edema of the legs; enlarged liver with little or no jaundice, a sense of fulness in the upper abdomen, digestive disturbances and, occasionally, pain. To these may be added, although they usually appear late in the course of the disease, the signs and symptoms of cardiac failure, as a rule, without evidence of any particular valvular disease. The course of the disease is characteristically slow, insidious and intermittent.

In spite of the recent revival in the interests and inquiry directed toward the etiology, there has been no general agreement as to the cause of this condition. It would seem, however, from a study of the reported cases, that the greater number have a common etiology. Included with them, and to a certain extent, confusing and obscuring the essentially single etiology of the group, are a certain number of what might be called "accidental" cases, in which the etiology differs from the usual one.

Consideration will first be given to these "accidental" cases. Some of them are undoubtedly rheumatic in origin, or at least the condition has been found associated with a rheumatic history and undeniable rheumatic cardiac lesions. In Winkelstein's[7] case an active rheumatic pancarditis existed along with calcification of the pericardium. Such cases are also differentiated clinically from the majority in a manner to be pointed out later. Wells[8] concluded that a large number of these cases were due to pneumococcus infections because: (1) purulent lesions are most likely to result in calcareous changes; (2) a tuberculous infection sufficient to cause a purulent exudate would leave definite changes (and these are frequently lacking); (3) the most common lesion that causes purulent exudate, and clears up leaving no characteristic changes is the lesion due to pneumococcus. It is possible that the pneumo-

6. In addition to the cases referred to specifically in the text, the cases reported by the following authors have been reviewed:
Alessio, F.: Case of Adhesive Pericarditis with Calcification, Gazz. d. osp. **42**: 623 (July 3) 1921.
Bennion, J. M.: A Case of Adhesive Mediastinopericarditis, Brit. M. J. **1**: 316, 1906.
Bruen, E. T.: Extensive Calcareous Deposit in the Pericardium, Tr. Path. Soc. Philadelphia **14**: 153, 1887-1889.
Douglas, M., and Yates, A. G.: A Case of Calcification of the Pericardium, J. Path. & Bacteriol. **18**: 129, 1913-1914.
Fenn, C. T.: Calcareous Degeneration of the Pericardium, Chicago M. J. **25**: 321, 1868.
Lucas, J. J. S.: Pericardial Calcification, Brit. M. J. **2**: 1404, 1907.
Mitchell, J. H.: Calcification of the Pericardium, Tr. Chicago Path. Soc. **8**: 109, 1909-1912.
Oberndorfer: München. med. Wchnschr. **53**: 2083 (Oct.) 1906.
Pellasse, M.: Pericardite calcifiante avec signes de retrecissement mitral, Lyon méd. **3**: 509, 1908.
Simpson, F. O.: Calcification of the Pericardium, J. Ment. Sc. **48**: 529, 1902.
St. George: Proc. New York Path. Soc. **21**: 184 (Oct.-Dec.) 1921.
Herrick, J. B.: Pericarditic Pseudocirrhosis of the Liver, Tr. Chicago Path. Soc. **5**: 71, 1901-1903.

7. Winklestein, A.: Calcification of the Pericardium, Proc. New York Path. Soc. **21**: 181, 1921.

8. Wells, H. G.: The Pathology of the Healed Fibrous Lesions of the Pericardium, Am. J. M. Sc. **123**: 241 (Feb.) 1902.

coccus may be the responsible agent in an occasional case, but a study of a large number of reported cases leads one to conclude that it is neither a principal nor an important cause. The absence of such a probable causal factor in the history, the slow and intermittent but progressive course of the disease, and, in particular, the clinical differences in the symptom complex referred to in the case of the rheumatic type seem opposed to the acceptance of such a view. The same objections apply to the possibility of a nonhemolytic streptococcus acting in an important etiologic rôle, suggested by Müller.[3]

There remains a majority of the cases, in which the etiology is obscure. Clinically and pathologically, they exhibit quite constantly the characteristic picture previously outlined. The ascites and the liver changes are striking as initial symptoms, and the cases presenting such symptoms have frequently been considered typical cases of cirrhosis of the liver. The pericardial involvement is frequently masked, and its symptoms are latent. In a series of fifty-nine cases reported by Jones,[2] mention of the pericardial involvement was made but once before necropsy. Characteristically, edema of the legs is absent, or is present early and disappears, not to reappear until late in the course of the disease. Cardiac symptoms are not prominent early and, of the series that we studied, heart symptoms were the marked presenting symptoms in only twenty-five cases. This generalization applies, however, only to the earlier stages of the disease; in the later stages, symptoms of heart failure are present in practically every case. In accordance with the absence of the cardiac symptoms is the absence of any signs of organic heart disease, particularly the signs of valvular disease. Frequently, examination of the heart has given essentially normal findings, although, with the development of the disease, there are increasing signs of myocardial failure. Occasionally, the signs and symptoms of pleural effusion and inflammation are present, although, as in the case of the pericardium, the pleural involvement is often masked. The pathologic changes are the same as those already mentioned, but the associated inflammatory changes in the other two serous membranes and the changes in the heart are particularly striking.

Fig. 3.—Anterior-posterior: Arrows indicate area of calcification.

It is by the presence of these symptoms, physical findings and pathologic changes that these cases are distinguished from those of the "accidental" group. Thus, in the rheumatic type, a history of rheumatic infection is frequently obtained. The heart gives evidence of rheumatic valvular disease; heart symptoms occur early, and are marked. Of the twenty-three cases in the foregoing series presenting marked cardiac symptoms, thirteen were rheumatic. Edema of the legs is an important symptom, concomitant with the ascites and lasting throughout the course of the disease. As would naturally be expected, the age of the patients tends to average much lower in the rheumatic type. Thus, in the cases that we have studied, the average age of patients apparently rheumatic (fifteen patients) was 28, while the average age of the nonrheumatic group (sixty-one patients) was 49, forty-four patients or 72 per cent. of that group being over 40.

The similarity of symptoms of this larger group (nonaccidental) to the syndrome described by Pick[9] is so striking as scarcely to call for comment. However, a brief consideration of the feature of the condition described by Pick may serve to throw some light on the etiology of these cases of calcified pericardium. Although the symptoms were not unknown to earlier writers, the report of Pick, in 1896, first focused attention on a group of cases of obliterative pericarditis, distinguished not by the signs of cardiac failure and pericardial involvement, but by a pronounced ascites, little or no edema of the legs, abdominal symptoms, and charges in the liver that simulated cirrhosis of the liver. Pick, himself, suggested the term pericardial pseudocirrhosis of the liver for these cases, and assumed that the changes found were the result of cirrhosis of the liver caused by heart failure. Early objections were made to such an explanation, and, without entering at this time into a discussion of the various factors concerned, it may be said that, at present, such a condition is generally considered to be the result of a polyserositis in which the peritoneal changes and symptoms are the most in evidence, and that the changes in the liver are the result of the disease process, and are not primarily the cause of the presenting signs and symptoms. In this group are included the cases of "Zuckergussleber" described by Curschmann,[10] in which the perihepatitis is particularly marked. Finally, it is generally considered that this condition is caused by the tubercle bacillus even in the absence of typical tubercle formation. The similarity of the cases of calcified pericardium to this group of cases is even more striking when one considers that many of the reported cases of Pick's disease, or polyserositis, are, in addition, cases of calcified pericardium as well, notably in the case of Kelly[11] and in two of Pick's own cases.

The conclusion would seem to be, then, that the cases in which a syndrome of calcification of the pericardium is present are, in reality, cases of polyserositis, and the condition is caused by the tubercle bacillus; this conclusion is strengthened by the fact that some of these cases have been definitely tuberculous, with tubercle formation and caseation, while others have been associated

9. Pick: Ueber chronischer, unter dem Bilde der Lebercirrhose verlaufende Pericarditis (pericarditische Pseudolebercirrhose), Ztschr. f. klin. Med. **29**: 389, 1896.

10. Curschmann: Zur Differential Diagnostik der mit Ascites verbundenen Erkrankungen der Leber und der Pfortadersystem, Deutsch. med. Wchnschr. **10**: 564, 1884.

11. Kelly, A. O. J.: On Multiple Serositis—The Association of Chronic Obliterative Pericarditis with Ascites, with Particular Reference to the "Pericarditic Pseudocirrhosis of the Liver" of Pick and the "Iced Liver" (Zuckergussleber) of Curschmann, Am. J. M. Sc. **125**: 116 (Jan.) 1903.

with definite tuberculous changes elsewhere in the body. There remain, however, two questions worthy of some discussion, which are: (1) the frequency of true cirrhosis of the liver in cases of calcified pericardium; (2) the explanation of the occurrence or nonoccurrence of the calcification.

True atrophic cirrhosis of the liver, as first pointed out by Wells [8] is rather frequent in cases of calcified pericardium, and is in rather striking contrast with the usual perihepatitis or hypertrophic changes found in cases of polyserositis. In the study of the series of cases referred to previously, we have found reports of true atrophic cirrhosis in seventeen of the fifty cases in which the liver was mentioned at necropsy. The simplest explanation, and to us the most probable, is that this change is merely the expression of the advanced stage of the disease. The observation of Kelly [11] that true cirrhosis is found in the advanced cases of polyserositis supports such an opinion, as does also the age of the patients. In addition, such a view strengthens the belief in an actual invasion of the liver parenchyma by the disease process, and indicates that the changes in the liver are primary, and that they are not secondary to heart failure.

An explanation of the calcification on similar grounds of duration of the process or of the age of the patient seems probable, especially when one considers the age at which calcification of the pericardium is usually found. Thus, it would seem that not only do cases of calcification of the pericardium belong to the syndrome of polyserositis, but that they are advanced cases in which, for some reason, the process has progressed more slowly, or, possibly, in which the process has begun later in the life of the patient.

The foregoing case report presents several interesting features, particularly that related to the development of ascites under observation. The history of the discharging glands in the neck of a patient aged 42 suggested to us that the condition was tuberculous adenitis, and that the case was tuberculous in origin. However, contrary to the findings in the majority of cases of calcified pericardium, the initial symptoms were cardiac. It should be remembered, however, that in cases of polyserositis, although the peritoneum is usually the first serous membrane to present symptoms, sometimes the symptoms first appear in one of the other serous cavities. If, for any reason, the peritoneal involvement remains latent or progresses more slowly, the symptoms of cardiac failure, prominent in many of the late cases, may be the initial symptoms. In addition, the analysis of the ascitic fluid removed reveals essentially the characteristics of an exudate, a fact that is much more indicative of a condition of true serositis than of a condition of simple ascites from cardiac failure.

ROENTGEN-RAY FINDINGS

Since the discovery of this uncommon condition during life is entirely dependent on the roentgen ray, it is extremely interesting to the roentgenologist. The infrequency with which the condition is reported is probably responsible for its apparent rarity, but another factor must be taken into consideration; namely, that not all suspected cardiac conditions are examined fluoroscopically. Even the stereoscopic film examination will not suffice, as the distribution of lime salt may be such that it will not cast a denser shadow on the film than the surrounding structures. However, if the patient is examined fluoroscopically, it is possible to view the cardiac outline from many angles.

Since the observance by Schwartz,[5] in 1910, of the first case of this condition to be discovered by the roentgen ray, eleven instances have been reported.[12] Two of these have been reported during the last year, one by Case [13] and one by Amundsen [14] of Christiania, Norway.

A review of all the cases exhibiting this condition, including the instances described at necropsy, shows that it has been found in all stages, from a few calcified plaques scattered throughout the pericardial sac to a stage in which the heart was almost completely covered by a stony deposit. In the last mentioned case, reported by Drummond [15] in 1890, the calcification varied from one-quarter inch to a full inch in thickness, and parts of the pericardial sac had to be opened with a saw. No instance as marked as Drummond's has been noted fluoroscopically.

When calcification of the pericardium occurs, the pericardial cavity is obliterated almost without exception, and the calcification is seen to appear in the layer of material that has united the visceral and parietal pericardium. The distribution is quite uniform, appearing first in the posterior region of the pericardial sac close to the apex. The ramifications extend out from this region, resembling finger-like projections of a lime salt deposit. The cases that have progressed furthest show a true extension of the calcium salts into the substance of the heart muscle.

A short review of the findings in the previously reported cases is given here. In the first case described by Schwartz,[5] the heart was normal in size, with a large mass on the posterior surface, extending over part of the left ventricular wall in a projection 3 cm. long and 2 cm. wide, which pulsated. His second case [16] showed a perielliptic shadow over the entire under surface of the heart, extending from apex to right base. Groedel [17] described a heart that suggested both mitral and aortic valvular pathology; there was a bandlike area of increased density running vertically near the apex. The two instances reported by Rieder [18] showed calcium deposit involving the pericardium and extending over the left ventricle; in both cases, the deposit was irregular. Weil's [19] findings were not dissimilar to those of Rieder. The deposition was irregular, and extended to the pericardium below the heart. We cannot give the findings in Brauer's case, because of failure to obtain the publication containing the report.[20] Assman [21] published an illustration, and mentioned the case of calcified pericardium in his text; from the illustration, the distribution appears to be rather patchy and mainly involves

12. Schwartz, two; Grodel, one; Rieder, two; Weil, one; Brauer, one; Assman, one; Klason, one; Case, one; Amundsen, one.

13. Case, J. T.: Pericarditis Calculosa: Report of a New Case Discovered Roentgenologically, J. A. M. A. **80**: 236 (Jan. 27) 1923.

14. Amundsen, A.: A Case of Calculous Pericarditis, Acta radiol. **2**: 38 (Feb.) 1923.

15. Drummond, D.: Notes on a Case of Calcareous Disease of the Heart and Pericardium, Am. J. M. Sc. **99**: 153, 1890.

16. Schwartz, G.: Demonstration einer ausgedehnten Kalkplatte im Herzbeutel, Mittels der Röntgenuntersuchen Nachwiesen, unter dem Bilde einer Lebercirrhose Verlaufend, Wien. klin. Wchnschr. **24**: 1541, 1911.

17. Groedel, F. M.: Erste Mitteilung über die Differenzierung einzelner Herzhöhlen im Röntgenbilde und den Nachweis von Kalkschatten in der Herzselhouete intra Vitam, Fortschr. a. d. Geb. d. Röntgenstrahlen **16**: 337, 1911.

18. Rieder, H.: Das Panzerherz, Fortschr. a. d. Geb. d. Röntgenstrahlen **20**: 50, 1913.

19. Weil, A.: Panserherz und Picksche Lebercirrhose, Fortschr. a. d. Geb. d. Röntgenstrahlen **23**: 489, 1916.

20. This case is given by Klason as being reported by Brauer in the "Atlas und Grundwiss der Röntgendiagnostik in der inneren Medizin," edited by F. M. Groedel. Our copy of the first edition of this book (Vol. VII, Lehmans med. Atlanton, München, 1909) does not contain a report of such a case. We have been unable to obtain a copy of a later edition.

21. Assman, H.: Die Klinsche Röntgendiagnostik der inneren Erkrankungen, Ed. 2, Leipzig, J. Vogel, 1922.

the pericardium covering the left ventricle. Klason [22] apparently reports only one case of true calcification of the pericardium, and one case of deposition of lime salt in the fibrous annulus coronarium. The last two cases previous to ours, namely, those reported by Case [13] and Amundsen,[14] show shadows of lime salt density in the posterior portion of the pericardial sac, in the region of the left ventricle. Amundsen's case showed the calcification more sharply localized in a finger-like shadow.

From the roentgenologic standpoint, suspected cases of this condition should be studied very carefully by fluoroscopic methods, and several films should be made at different angles. In making the exposures, the shortest possible time should be used so that the calcified area will stand out as clearly as possible. Regarding fluoroscopy, it is extremely important that the observer remain sufficiently long in a darkened room before attempting the screen examination.

CONCLUSIONS

1. The majority of the cases of calcified pericardium are of a similar nature and etiology, constituting a definite clinical pathologic group.
2. They are essentially cases of polyserositis, probably advanced stages, and are tuberculous in origin.
3. Occasional cases occur, closely simulating the foregoing group, but due to other causes, usually to the presence of the rheumatic virus.

In the study of cardiac disease, more frequent use of the roentgenologic examination, by means of which these cases are diagnosed during life, will increase the number of such cases discovered.

22. Klason, T.: Pericarditis Calculosa und Herzverkalkungen, Acta radiol. 1: 162 (Sept.) 1921.

THE EUSCOPE AS AN AID TO MICROSCOPY *

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Recent years have witnessed a great expansion in the use of the microscope in industry as well as in science with the result that routine microscopy, which was formerly done by self-selected specialists, must now be entrusted to technicians. The visual acuity of technicians, especially in such routine work as counting objects or searching for casts, tubercle bacilli and other microscopic objects, thus becomes a matter of prime importance, not only because of its effects on reliability and accuracy, but particularly because the maintenance of visual acuity in persons with good vision is wholly dependent on freedom from eyestrain, fatigue and toxins.

The physiologic optics of microscopy are rendered exceedingly complex by the multiplicity of fine muscular adjustments, intricate nerve mechanisms and selective action of diverse stimuli on the delicate nerve end structure of the retina. All these are involved in the impairment of visual acuity and the production of such symptoms of fatigue and strain as headache, somnolence, muscular pain, blepharospasm, flicker dizziness and disturbances of accommodation and vision, such as blurring, spots and color sensations. When microscopists with such symptoms are seen by ophthalmologists, some slight muscular deficiency or error of refraction is generally found, which, when corrected, often leads to respite or amelioration but very seldom to a cure. In our experience, even a slight muscular trouble permanently restricts the capacity of a microscopist to do routine work with dependable visual acuity. On the other hand, refractive error patients get along far more comfortably and reliably. In this connection, it is of interest to note that no technician who began with tested emmetropic eyes has been encountered by us who managed to continue routine microscopy longer than two years without finding it necessary to be fitted with glasses.

In an attempt to get a closer insight into the causative factors of deterioration of visual acuity and other symptoms of strain and fatigue incident to microscopy, three technicians, G. S., J. H. and E. W., were kept under continuous observation for more than two years. All were healthy young adults. E. W. and J. H. had tested normal vision; G. S. wore a correction for astigmatism.

Their work with monocular microscopes proved definitely that suppression of the image in the "off eye" is invariably accompanied by effort and strain, no matter how practiced the microscopist may be. Their experience has demonstrated also a very close incidence between the time spent in looking through the microscope and the occurrence and character of the complaints. Thus, blurred vision was never experienced except in connection with overwork. Experiments made with high and low magnifications showed a close relationship between high magnifications and eyestrain, and the association of intensity of light with loss of acuity and other symptoms became also plainly evident. Thus, a glare, or too much light through the microscope induces symptoms of irritation, such as blinking, blepharospasm and lacrimation, while insufficient light results in quick fatigue and diminished acuity, due, in part at least, to the effects on accommodation.

Our observations may be summarized by the statement that many factors contribute to the production of lessened acuity, discomforts and other signs of fatigue and strain connected with microscopy. These factors occur either singly or in combination with other factors, and while manifesting a decided tendency to vary with the individual, are not always similarly operative as regards either cause or effects, even in the same individual.

The only constant factor is posture, which induces different effects according to the position assumed by a microscopist; this, in turn, is influenced by the type of spectacle or eyeglass frame worn, at times also by an existing visual defect or other anatomic peculiarity. Certainly, the maintenance of a fixed position of the head and neck always involves strain with consequent discomfort and fatigue, and this became plainly apparent when a trial was made of binocular microscopes. Thus, all three technicians preferred to return to the monocular, finding that the greater rigidity and fixation of the head and neck, and possibly also of the ocular musculature, required by binocular microscopes caused discomforts for which the visual relief afforded by them did not compensate. In fact, it soon becomes plain that the monocular microscope allows more elasticity of position and greater ability to shift than binocular microscopes.

CONSTRUCTION OF THE EUSCOPE

Attempts to aid and improve microscopy led to the construction of the euscope (*εὖ*, well or comfortably; *σκοπεῖν*, to see), which, with binocular single vision, provides enlarged images of stereo effect in conjunction

* From the Prudential Longevity Service.

with diminished light irritation to the nerve end organs of the retina, and permits natural, easy posture with complete relaxation and freedom of the head, neck and ocular muscles.

From Figure 1 it will be seen that the euscope consists of an adjustable stand supporting a camera or viewing

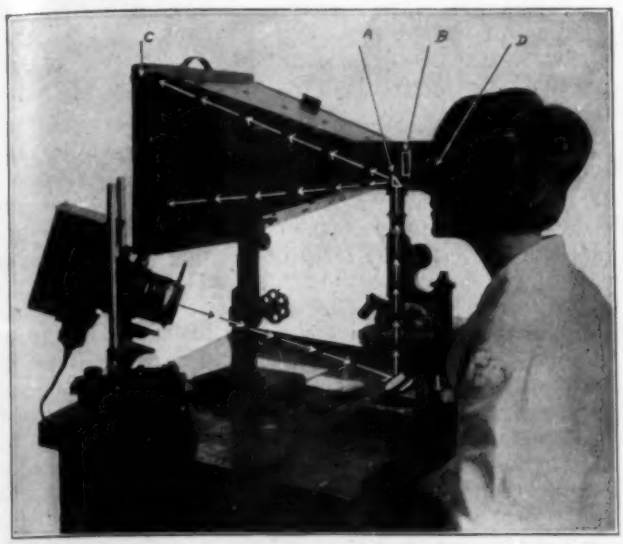

Fig. 1.—Euscope arranged for microscopy. Arrows indicate path of light: A, total reflecting prism; B, mount for sphero prisms or other magnifiers; C, screen or photographic plate or paper, and D, shield for side and extraneous light.

chamber, having on its floor, near the smaller end, an aperture to receive the eyepiece of the microscope. In this is placed the removable mount of a total reflecting prism, which bends the ray of light emerging from the microscope at a right angle in such a way that the microscopic image is deflected to the screen at the larger end of the eusope. From this it will be seen that euscopy is done by projection, with all its attendant facilities and advantages.

The viewing chamber, or camera, is light tight and screened from side and extraneous light by a conforming shield fitted to the ocular or smaller end, which insures comfortable projection in bright daylight. A lens plate or diaphragm, placed between the ocular end and the prism aperture, carries a pair of spheroprisms or a strip of reading glass of proper focus, which has the advantage of eliminating interpupillary adjustments. Either of these greatly enhances effectiveness by adding magnification, crispness and stereo effect.

The larger, or screen end is arranged to allow easy removal of the screen for the projection of large images or replacement of the screen by a photographic plate or paper holder. Experiments with different screen materials in the effort to get a screen with hard, white matte surface, as free from graininess as possible, showed that screens made of calcium tungstate or of green zinc oxid or of titanium oxid are satisfactory and durable, the zinc oxid having the finest grain.

Any type of efficient lamp will satisfy illumination requirements. For critical illumination, however, and particularly for photography, a homogeneous source of light, such as is always preferred for projection, will give very much better results than any other. Of these, the new ribbon filament lamp or the older tungsarc are recommended. New lamps are in process of development which will amplify illumination, but the lamps named above will be found to satisfy every reasonable requirement, except distant projection, especially if provided with a condensing lens having a cartesian surface.

The only change in one's accustomed microscopic technic required by the euscope consists merely in manipulating the object slide to conform with the true position of the object, instead of the reverse, as when seen with the unaided microscope. This will be found advantageous and also makes the monocular microscope available for chemical microscopy. Another technical point to be noted is the adjustment of the height of the euscope so that its prism rests as close as possible to the top lens of the eyepiece of the microscope.

For routine work, a 150 millimeter square screen conveniently placed at a distance of 200 mm. from the reflecting surface of the prism is satisfactory. Seen through the strip of reading glass, the visual field has then the apparent size of a full page magazine illustration, differing somewhat with the type of objective and eyepiece employed. The image appears crisp with three dimensional effect, and corresponds with the normal projection of standard microscopes. It is to be noted, however, that any spherical aberration of the objective is accentuated, as is to be expected in projection. Any possible combination of eyepiece and objective may be used. With objectives less than 16 mm., a larger field is secured with the concave mirror of the microscope, or by lowering the condenser and using the plane mirror, which should be regularly employed with objectives of higher power. The enlarged stereo-like images thus possible with binocular single vision are seen without effort in a natural, easy sitting position, permitting perfect freedom of play of the head, neck, back and ocular musculature. By viewing a reflection on a screen instead of looking directly at the light source as one does with the unaided microscope, irritation of the rods and cones of the retina, with consequent fag of the visual purple, is reduced to a minimum, and more of the retina is brought into play.

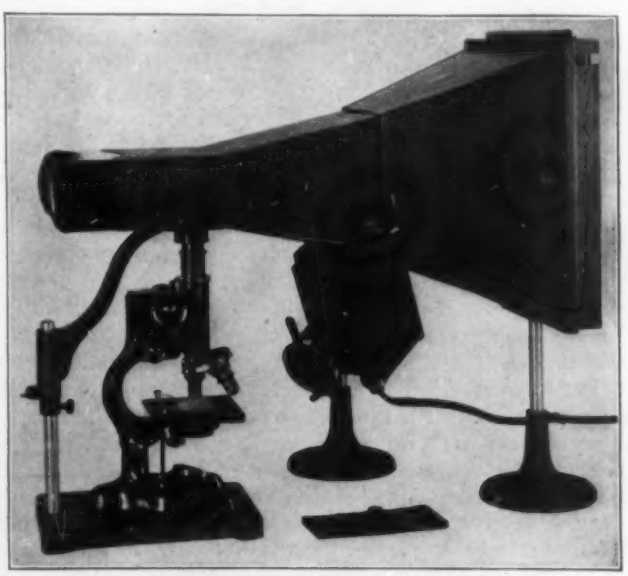

Fig. 2.—Simplified euscope, extended, with accessories.

Eyeglasses or spectacle frames of any type may be worn with perfect comfort and offer no handicap. This is true whatever the correction needed by the individual microscopist, bifocal lenses being as comfortably worn as simpler ones. Thus, routine microscopy is brought, as regards comfort and strain, to a level with ordinary

clerical work, and the ease and certainty with which structural details are seen appreciably increase the efficiency and capacity of the microscopist. As evidence of this is the experience that during the four years in which euscopes have been used in the Prudential laboratory, not a single complaint referring to fatigue or strain symptoms has been heard.

OTHER USES OF THE INSTRUMENT

For teaching and demonstration work, the euscope can be used in a dark room as a simple projection apparatus by removing the screen and employing a sufficiently intense light. In semilighted rooms, the opaque screen may be replaced by a transparent screen of thin white Japanese silk or a thin plate of glass with a finely ground surface. A transparent screen of particularly fine grain for this purpose may be prepared with an unexposed photographic plate.[1] Either method permits the demonstration of microscopic specimens with any combination of eyepiece and objective desired by the instructor, who can remain comfortably seated while manipulating the microscope in his normal, accustomed manner. Microscopic objects have in this way been demonstrated with the euscope continuously for hours at a time in well lighted exhibition halls. By varying the arrangement, instruction may be given students by means of the euscope with much saving of time and uncertainty.

Photomicography has possibilities of usefulness that have not yet been realized, largely because of the special skill and apparatus that have heretofore been required. The euscope, being a natural camera, makes photography practical for routine work, even in the hands of the inexperienced. Thus, at any time during the examination of a slide that may present some unusual or interesting feature that it is desired to record, one can simply replace the viewing screen by photographic plate or paper and expose it. No other accessory or manipulation is necessary than intercepting the beam of light between the lamp and the microscope mirror with a piece of cardboard, while withdrawing and replacing the slide of the plate holder. The construction of the euscope permits the use of either 4 by 5 or 8 by 10 inch plates or bromid papers for record photographs. In this way, blood counts may be made photographically with 16 or 8 millimeter objectives, which give a field large enough to include all of the 400 squares of the hemocytometer slide, and when made in this way, not only serve as records but also are obtained more accurately and less tediously.

For research work, the euscope offers possibilities, in addition to those mentioned, in connection with routine work and photography. The highest magnifying powers demand a close and exact approximation of the cornea of the observer to the top lens of the eyepiece, in conjunction with fine focusing, which is generally attended with disturbance of definition and difficulty of continuous study. With the euscope, however, objectives and eyepieces of the highest resolving powers can be employed just as conveniently and without more difficulty than those of lower power.

1. A clean plate slightly larger than the desired size should be taken in order to trim defective or injured edges. It should be fixed in hypo, washed and dried, and stock solutions A and B should be prepared, A consisting of 10 per cent. barium chlorid and B of 10 per cent. chemically pure sulphuric acid. Solutions A and B are each diluted 200 times, and the dilutions are placed in separate trays. The plate should be soaked in A tray five minutes, washed and rinsed carefully with water, and then soaked in B tray five minutes. This should be repeated until the density is about one-half what is wanted. Fineness and evenness of grain depend on manipulative care, particularly in washing and rinsing the plate when changing from one tray to another.

It need hardly be stated that the euscope does not increase the resolving power of the microscope, which now practically reaches the theoretical limit of attainment fixed by the wave length of light. The euscope, however, permits better utilization of the limit of resolution and also offers magnifications that have not been hitherto obtainable by direct vision. Thus, the limit of microscopic resolving power is attained with the combination of 1.4 numerical aperture and 2 millimeter equivalent focus objective and 30 × compensating eyepiece, giving 2,700 magnifications. According to the formula:

$$\text{magnifications} = \frac{\text{projection distance}}{\text{focal length of objective}} \times \text{eyepiece magnifications}$$

It will be seen that by using the 400 millimeter screen distance of the euscope, 6,000 magnifications are reached. Adding the strip of reading glass, which is part of the euscope equipment, more than 10,000 magnifications are attained, and if a 6 × binocular stereoscopic magnifier is employed instead of the reading glass, more than 35,000 magnifications may be clearly and comfortably studied, and it is possible to more than double such magnifications wtih monocular magnifiers of higher power. In this way, minutiae, although resolved by the objective but which are so fine as to appear indeterminate because of the small angle of arc they subtend, are spread and may be seen much better. Thus in a recent study of the optical constants of fine crystals, a novice easily determined with the euscope extinction angles which an expert was unable to measure with the unaided petrographic microscope.

Euscopy is applicable to other optical instruments as well as to the microscope, and will be most appreciated when the heights of the table and the chair are so adjusted that, when he is seated in a natural and easy position, the eyes of the observer are on a level with the ocular end of the euscope.

98 Central Park West.

SUTURE OF WOUND OF THE HEART

LIGATING THE INTERVENTRICULAR BRANCH OF THE LEFT CORONARY ARTERY AND VEIN *

GEORGE L. DAVENPORT, M.D.
CHICAGO

The case here reported concerns a punctured wound of the heart penetrating the upper portion of the middle third of the right ventricle anteriorly, near the septum, and accompanied by hemopericardium. The cardiac wound was not complicated by any injury to the pleura or lung, and, in the closure of the heart wound, ligation of the interventricular branch of the left coronary artery and vein became necessary.

REPORT OF CASE

History.—J. S., a white man, aged 44, a machinist, admitted to the detention ward of the Cook County Hospital, Aug. 3, 1920, came voluntarily, complaining of being very much depressed over the recent death of his mother. After the usual examination, a tentative diagnosis of simple depression was made, and the patient remained for further observation. The patient had a good physique and was well nourished. The heart examination, in particular, did not reveal any abnormality. The blood pressure was: systolic, 120 mm. of mercury; diastolic, 80 mm.

* Read before the Chicago Surgical Society, May 6, 1921.

The day following the examination, August 4, the patient inflicted on himself a stab wound, using for this purpose a 16 penny casing nail or wire nail 3½ inches long and about a 12 gage size (Fig. 1). He must have grasped the nail in his right hand and made several attempts at stabbing himself in the left breast, for there were numerous superficial punctures of the left part of the thorax somewhat below the

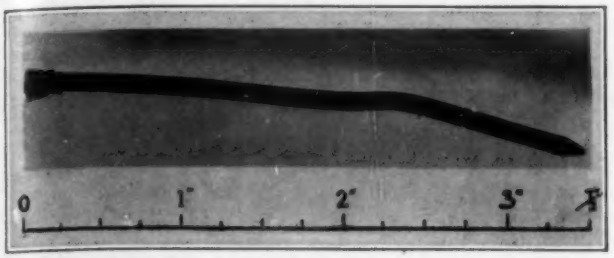

Fig. 1.—The nail with which the wound was inflicted.

precordial region. Not satisfied with this, he changed the nail to his left hand, pressed the point to his left breast and, using his right fist as a hammer, drove the nail up to its head into the chest. The resulting skin wound was located 1 inch inside the nipple line in the fourth interspace (Fig. 2, 1).

At about 1:45 p. m. on the same day, the patient was seen to stagger and sink to the floor. The attending intern at once noticed the bleeding from the left chest and extracted the nail with artery forceps. Blood exuded freely during and after this manipulation. The radial pulse being hardly perceptible, stimulation with camphor in oil, and strychnin was administered, and the patient was immediately transferred to the surgical service.

Examination.—The patient was conscious, his face had an expression of anguish, the skin, in general, was pale, cold and clammy, and the lips, the tip of the nose and the finger nails were slightly cyanotic.

The radial pulse was small, rapid and irregular, periodically becoming imperceptible. Respirations were shallow, and there was a slight increase in the extent of the cardiac dulness. Auscultation revealed diminished and irregular heart tones. Fluoroscopy demonstrated a moderate increase of the cardiac shadow. An elaborate examination with the patient in the sitting posture was not possible because of his condition. The freely bleeding stab wound in the precordial region, together with the symptoms already enumerated, pointed toward a cardiac injury, and, under this tentative diagnosis, the patient was at once removed to the operating room where preparation was made for the indicated surgical intervention.

Operation and Result.—The operation started at about 2:30 p. m., local anesthesia (procain, 1 per cent. solution) being employed. An area large enough for rib resection was blocked off, the fact being kept in mind that a diagnosis of the exact location of the wound in the heart is impossible until after exploration. Herein lies one great difficulty in heart surgery. Thus, the mode of approach being indefinite, I proceeded to place the incision so that more than one rib could be resected, or, if necessary, a flap operation could be employed.

An incision 12 cm. long was made from the center of the sternum to the left, over the fifth rib and curving slightly upward toward the axilla (Fig. 2, 1). The skin edges were undermined above and below, the incision then being carried down through the pectoralis major muscle and the periosteum of the fifth rib (Fig. 2, 2).

The periosteum was peeled off, and 5 cm. of the fifth rib with a portion of its cartilage was resected (Fig. 2, 3), care being taken not to open the pleura, because herein lies the ultimate danger of infection, although many observations show that the pleura is nearly always opened during operative manipulation, if opening does not already exist.

The muscles were then pushed up and out with a periosteal elevator toward the fourth rib, as well as downward toward the sixth rib, and retracted.

Then the cellular tissue along the sternal border was grasped, incised carefully from the lower border of the fourth rib downward and pushed outward with the internal mammary artery, the pleura stripping with ease from the pericardium.

All the tissues in the field so far were infiltrated with blood, even to the dense pericardium. The blood was seen escaping freely from the stab wound in the pericardial sac, a leakage which, I believe, prevented a marked heart blockage from hemopericardium, a condition which probably would have resulted in death before an operation could have been instituted.

The pericardium was grasped with forceps, lifted up and an oblique incision made 5 cm. long downward and outward, starting at the border of the sternum just below the lower border of the fourth cartilaginous attachment (Fig. 3, 4).

Retractors were then placed in this incision, one below and two above; too great a pull on the outer retractor caused more irregularity in the heart action because of the dragging on the great vessels at the base.

The pericardial sac was filled with liquid blood, and there was also present a large clot, which eased itself out of the retracted opening in the pericardial sac as a result of the pressure within the sac increased by the heart action. The clot was about the size and shape of the palm of the hand with the fingers, and had the appearance of whipped up fibrin.

The heart presented a wound about 5 mm. in diameter, located in the upper portion of the middle third of the right ventricle anteriorly, about 3 mm. to the left of the interventricular branch of the left coronary artery and vein; these vessels were seen to fill and empty with each heart beat.

The cardiac wound extended through the right border of the septum of the ventricles into the right ventricle. From

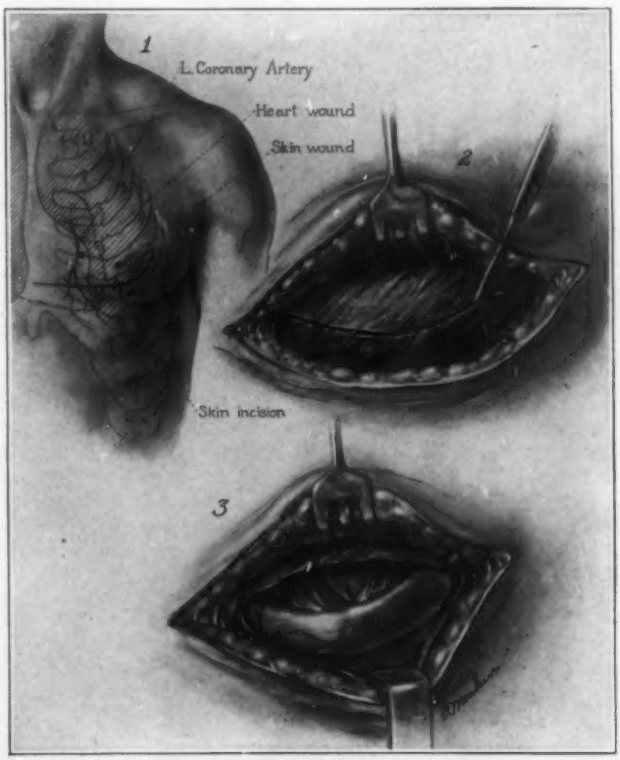

Fig. 2.—Operative procedures: 1, location of wounds and incision; 2, incision extending through pectoralis major muscle; 3, resection of the fifth rib.

this wound was seen coming with each ventricular contraction a jet of dark blood, which struck against the chest wall at the under surface of the fourth rib.

The wound of the heart was closed with interrupted silk sutures carried on a full curved needle. A straight needle was not used because it cannot follow the movements of the heart and will tear the myocardium. Digital pressure was

made over the wound to keep the blood from befogging the field. The first, or center, stitch went into the thick septum of the left side and out through the wound, then across into the wound and through the thin, flabby wall of the right ventricle, going under the interventricular branch of the left coronary artery and vein, and coming out just to the right of

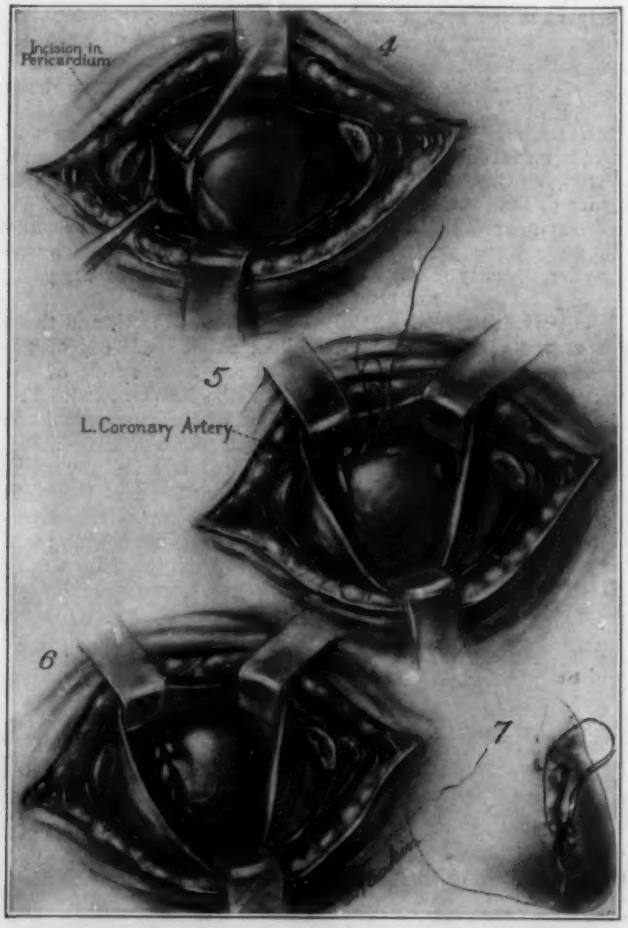

Fig. 3.—Operative procedures: 4, incision in pericardium; 5, the first or center stitch, coming out to the right of the coronary artery; 6, addition of a stitch placed above and another below the first one to stop bleeding; 7, reinforcing of the first suture line with a running silk stitch.

them, avoiding the endocardium (Fig. 3, 5). The stitch was tied and the knot tightened when the muscle was in repose, this suture being left long, to be used as a guide and tractor for the placing of the other two sutures. It was found that almost all the bleeding had stopped except for some oozing above and below this stitch, so with one sweep of the needle going under the vessels mentioned above, a stitch was placed above and below the first one, stopping all bleeding (Fig. 3, 6).

Then, with a running silk stitch similar to a Lembert suture, an attempt was made to reinforce the first suture line as well as to cover them over in order to prevent adhesions; it was noted that there was a tendency for these sutures to tear out in places because of the tension and the muscular action of the heart wall (Fig. 3, 7).

Some of the sutures were placed during special time in the cardiac cycle; that is, during ventricular contraction when the thin, flabby wall of the right ventricle is firmer, and when it is not so easy to include the endocardium in the stitch. The remaining stitches were inserted at any time, while the mobility of the heart was steadied with the left index finger on the apex.

The blood remaining in the pericardial sac was mopped out with wet laparotomy sponges, and the sac closed with interrupted catgut sutures.

A gutta percha drain was inserted down to the pericardium, the muscles were brought together with catgut, leaving out the portion of resected rib, and the skin was closed with black silk. On two occasions during the operation, it became necessary to give the patient camphor in oil hypodermically because of the extremely poor pulse.

Since the patient was not suffering from hemorrhage, there was no need of intravenous salt solution or of blood transfusion.

The drain was removed after forty-eight hours, and there were no postoperative complications. The wound healed kindly, and the patient was out of bed, August 17, thirteen days after the operation. A roentgenogram of the chest at this time showed the heart to be slightly increased in size. The configuration of the cardiac shadow was similar to that of an aortic regurgitation (Fig. 4).

The radial pulse chart showed irregularity in the pulse rate, especially during the first three days after operation. The patient, on the second, third and fourth days after operation had intermittent periods of labored respirations, and, for the first nine days after operation he was restless, a condition which was partly controlled by morphin.

Further Examinations.—Examination of the heart following the operation revealed irregular action, probably due to premature contractions.

When the patient was discharged from the hospital, August 27, the heart examination revealed a slight enlargement but no murmurs. September 1, four days after leaving the hospital, the patient resumed his former occupation.

The patient was sent to Dr. Fred Smith for a series of electrocardiographic tracings, requesting findings and diagnosis. At the time when the first tracing was made, August 23, Dr. Smith was not cognizant of the fact that a branch of the left coronary artery and vein had been ligated during the operation.

The first electrocardiogram (Fig. 5) was made, August 23, nineteen days after the operation, and Dr. Smith reported that the striking feature of the electrocardiogram was the negative T deflection in the three deviations, and that these findings suggested that one of the branches of the left coronary artery had been ligated in repairing the cardiac wound.

The second electrocardiogram (Fig. 6) was made, September 9, thirty-six days after the operation. The report was that the T wave had become less negative, and that this change in the electrocardiogram was very similar to that in the dog following the experimental ligation of branches of the left coronary artery.

The third electrocardiogram (Fig. 7) was made, October 2, fifty-nine days after the operation. The report was that

Fig. 4.—Cardiac shadow: the similarity of configuration to that of an aortic regurgitation may be noted.

the electrocardiogram was similar to the one made at the former visit (Fig. 6).

The fourth electrocardiogram (Fig. 8) was made, April 18, 1921, 257 days, or eight and one-half months, after the operation. Dr. Smith reported that the T wave had changed to the positive phase, and that these findings still conformed to

the electrocardiographic changes in the dog following the experimental ligation of branches of the left coronary artery. Examination of the heart, made by Dr. Smith on the same day, revealed only a slight enlargement, no clinical evidence of any sequelae, such as adhesions of the pericardium, asystole, palpitation or dyspnea, conditions that may result from pleuropericardial adhesions.

COMMENT

After reviewing the available literature, I find that differences in opinion still exist as to the origin and significance of the T wave in its various phases, but the character and change of the T deflection in the electrocardiograms of this man are similar to those that Smith [1] produced experimentally in the dog by means of the ligation of branches of the left coronary artery. They also resemble the electrocardiographic tracings in the case diagnosed and reported by Herrick,[2] in which thrombosis of the left coronary artery was verified later at necropsy.

As this is only the report of one case, there is need for further confirmation, and I present these facts for consideration.

The appearance of the scars in the case reported here, when the patient was discharged from the hospital, is shown in Figure 9. The operative scar was inked.

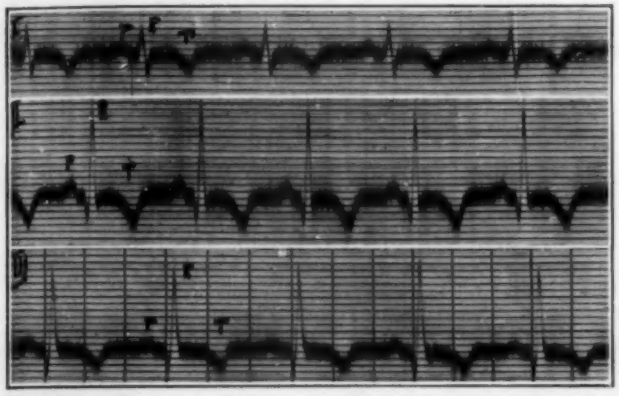

Fig. 5.—First electrocardiogram, made nineteen days after operation.

Surgery of the heart is a recent conquest, the first cardiorrhaphy having been performed in the year 1896 by Farina of Rome. In 1901, of the twenty-six instances tabulated, three operations were performed in America. In 1909, Vaughan [3] gathered 150 cases in which operations had been performed for wounds of the heart with a total of ninety-eight deaths, representing a mortality rate of 65 per cent.; of the 150 operations tabulated, fourteen were performed in America. In 1919, Costantini [4] gathered 281 cases in which operations for wounds of the heart had been performed, with a total of 140 deaths, or a mortality of about 50 per cent.

Operations for all injuries of the heart should be performed immediately, according to Holmes and Fisher, who in 1881 reported, prior to the days of cardiorrhaphy, a mortality of 85 per cent. The possibility of a spontaneous repair of heart wounds is evidenced daily in the laboratory in taking blood from the guinea-pigs for the complement used in the Wassermann test when a large (18 gage) needle is thrust into its small heart. It was reported that, one of these animals, its heart having been punctured a great many times during the previous eighteen months, died recently as a result

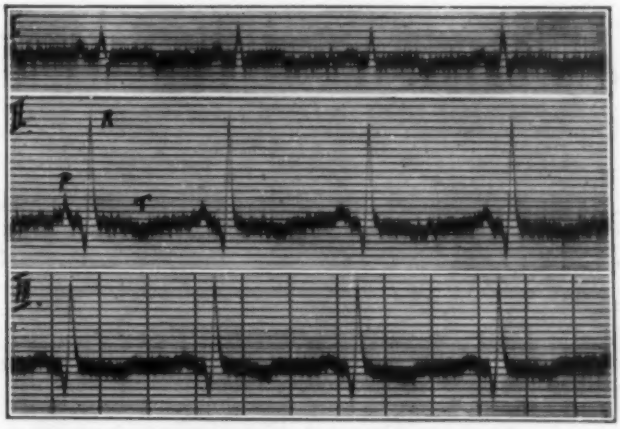

Fig. 6.—Second electrocardiogram, made thirty-six days after operation.

of pericardial hemorrhage following the last puncture, that examination of the heart revealed no gross changes, and that, microscopically, the muscle showed no scar tissue or recent inflammatory tissue.

The diagnosis of heart injury is difficult, but it can be made if one examines the wound carefully and knows the exact interpretation of each symptom and sign.

The importance of the following considerations is well illustrated by the case just cited.

When there is loss of consciousness, it may have been caused by cerebral anemia resulting from hemorrhage or ventricular blockage due to hemopericardium. A skin wound in the precordial region with the presence of copious hemorrhage is very significant of cardiac injury; although, in certain cases, the wound may be quite remote from this location, and a heart wound may be present.

The expression of anguish and agitation is caused by cardiac blockage from the hemopericardium or by cerebral anemia. The pale, cold and clammy skin is the result of shock. Cyanosis of the lips, tip of the nose

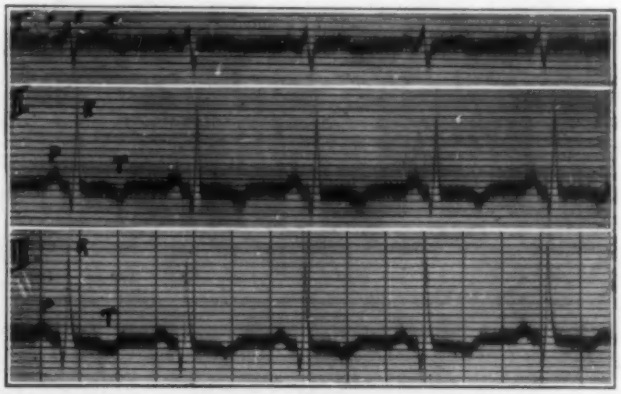

Fig. 7.—Third electrocardiogram, made fifty-nine days after operation.

and finger nails, accompanied by pallor, is very significant of hemopericardium, a condition which early manifests itself by interference with the venous return, and finally results in blockage of the heart.

The pulse in this case was small, rapid and irregular; but one must bear in mind that in certain dry wounds

1. Smith, F. M.: Ligation of Coronary Arteries, Arch. Int. Med. **22**: 8 (July) 1918; Further Observations on T-Wave of Electrocardiogram of the Dog Following Ligation of Coronary Arteries, ibid. **25**: 673 (June) 1920.
2. Herrick, J. B.: Thrombosis of the Coronary Arteries, J. A. M. A. **72**: 387 (Feb. 8) 1919.
3. Vaughan, G. T.: Suture of Wounds of the Heart, J. A. M. A. **52**: 429 (Feb. 6) 1909.
4. Costantini, Henri: Surgical Treatment of Heart Wounds, J. de Chir. **16**: 383, 1920.

the pulse may remain good, and that in these dry wounds intermediate hemorrhage may occur, explaining the appearance of a hemopericardium with blockage of the heart days after the injury.

Dyspnea and superficial respiration result from anemia or hemothorax, and a pneumothorax when these conditions are present.

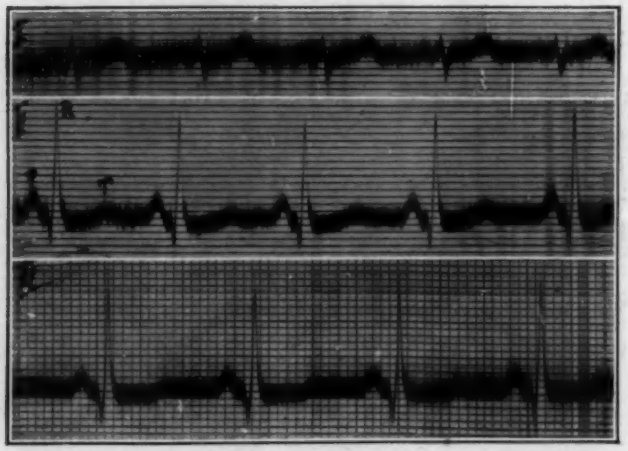

Fig. 8.—Fourth electrocardiogram, made 257 days after operation.

The increase in cardiac dulness with diminished heart tones is very important, indicating the presence of a hemopericardium. The fact that murmurs are present is of little value.

Fluoroscopic examination when a projectile is present reveals its approximate position and depth. A very important sign is the immobility of the cardiopericardial shadow, which reveals the existence of a hemopericardium, but which is difficult to demonstrate if a hemothorax coexists. Absence of movement of the diaphragm when that is injured, as well as the presence of blood in the thoracic cavity, may point to an injury of the heart.

The course of surgical procedure in heart injuries is, first, to establish the diagnosis of the cardiac injury,

Fig. 9.—Appearance of scars when the patient was discharged; the operative scar was inked; the small scars resulted from puncture wounds made by the patient.

and, secondly, to ascertain the exact location of the heart wound, controlling hemorrhage by digital pressure while the necessary further exposure is carried out. Right sided injuries should be approached from the right, although they can be handled from the left if a large flap is raised, including cartilages with portions of their ribs, the third, fourth and fifth ribs, and also a transverse section of the sternum. The pedicle should be placed to the outer side, where there is less danger of injury to the pleura; but if it is placed internally, the triangularis sterni muscle must be cut to raise the flap, and great care must be used not to cut or tear the pleura. Flap operations are necessary in repairing wounds of the auricles. Types of flaps are shown in Figure 10, in which, in the center of the pedicle, is seen a transverse incision for the purpose of dividing the fourth rib. Ventricular wounds are easily sutured by the resection of one or two ribs. If the heart is bleeding profusely, the opening in the chest is too small, and there is no time to lose, since it is too late to raise a flap, a larger portion of rib out toward the axilla is resected and, by means of a self-retaining retractor or a rib spreader, the work is done quickly through the pleura.

According to Rehn,[5] bullet wounds of the heart giving opportunity for first aid comprise only a limited chapter in war surgery. The greater number of men so wounded die on the battlefields, as only a small percentage may be transported; for such patients, the bomb-proof station guarantees the best opportunity for proper surgical attention.

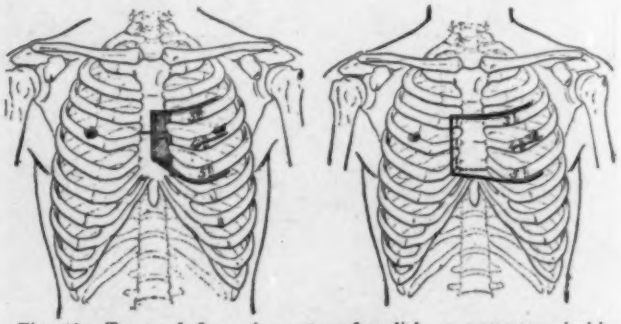

Fig. 10.—Types of flaps: in center of pedicle, a transverse incision for the purpose of dividing the fourth rib; after Costantini.

In the later operations for retained projectiles and wounds entering from the back, Matas[6] urges the Duval-Barasty operation, or the median thoracophrenic laparotomy (Fig. 11) for the complete exposure of the heart and vessels at the base. Three cases of operations performed in this manner were reported in 1918. The incision is made in the median line extending down below the xiphoid cartilage, cutting the sternum in the midline, and also transversely at the level of the third cartilage; then the diaphragm is incised from the front backward to the triangular ligament.

Duval, up to 1918, reported a total of sixty-two cases of war projectiles in the heart; thirty-nine were cases of parietal or mural wounds, and sixteen of these patients were operated on, with a result of two deaths; twenty-three patients were not operated on, and no deaths were reported.

Another interesting series was reported of twenty-three cases of projectiles retained in the heart cavities; ten of these patients were operated on, with three deaths occurring; thirteen were not operated on, with a result of only one death.

These statistics, as Matas has stated, "favor the nonoperative treatment, but indications cannot be formulated on statistics, only on the individual prognosis as

5. Rehn, Edward: Zur Chirurgie des Herzbeutels, des Herzens und grossen Gefässstammes im Felde, Beitr. z. klin. Chir. **106**: 634, 1917.
6. Matas, Rudolph: Routes of Access to the Heart: Lessons Gathered from the Experiences of the World War, M. Rec. **99**: 595 (April 9) 1921.

to the condition of the patient, degree and duration of disability, and when the life of the patient is threatened by the presence of the projectile."

Occasionally, in the field of operation, one may find the remains of a persistent thymus.

Knife wounds are usually penetrating and single. Bullet wounds are apt to be perforating or double, and this is especially true if the wound is on one side of the chest, and the fluoroscope shows the projectile on the other.

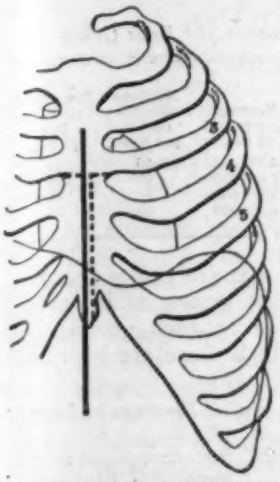

Fig. 11.—Site of median thoracophrenic laparotomy; after Costantini.

Digital pressure is the procedure of choice in controlling bleeding from the heart. Such methods as the pinching of the vena cava at the base with the thumb and index finger, and pinching the base of the ventricle, have their drawbacks because a dangerous anemia is created; grasping of the edges of the wound with Kocher forceps may cause further tearing in the muscle.

It is impossible to avoid the endocardium in suturing wounds of the auricles because of their thin walls. For this reason, Villar proposed ligature *en masse,* after grasping the edges of the wound with artery forceps. Searching for foreign bodies is to be avoided, as this organ takes care of projectiles admirably. The hemorrhage is to be checked at once, but if the projectile is under the finger, the myocardium should be incised and the projectile extracted.

Wounds of the trunks of the coronary arteries are fatal, and death results before they are seen by the surgeon. When branches of the coronary arteries are wounded, these vessels require ligation at both ends as Dumenici first recommended, because they may bleed later and a resulting hemopericardium may be fatal.

Prognosis in Cases in Which Operation Was Performed

Cases	Deaths Number	Mortality Per Cent.
221 ventricular wounds	118	53
36 auricular wounds	14	38
119 left ventricular wounds	65	55
102 right ventricular wounds	53	52
23 wounds of coronary arteries	10	44
213 knife injuries	111	52
74 projectile injuries	35	47
13 wounds of the abdomen associated	10	99
27 wounds of the lung	19	70
128 hemopericardium	49	38
48 hemothorax	27	57
62 hemothorax and hemopericardium	43	69

The pericardium can be drained; but, if there is a pulmonary wound, it must be cared for and the wound of the pleura closed if infection is to be avoided.

If manipulation of the heart should cause it to stop during the operation, simple, gentle massage is employed. This, however, is of no avail when the arrest is caused by exhaustion of the heart muscle.

Costantini states that up to the year 1919, the average mortality was about 50 per cent., hemorrhage being the greatest cause and infection next.

The heart takes care of blockage better than it does of open exposure.

Postoperative complications, such as intermediate hemorrhage, may result when catgut is used in suturing the cardiac wound, because it has a tendency to soften and give way. Embolism may occur from separated portions of the endocardium. It is diagnosed by characteristic symptoms observed immediately after operation.

Infection after hemorrhage is the predominant cause of death; about 50 per cent. of all the patients surviving the first twenty-four hours developed infections. When it occurs, it usually involves the pleuropericardial surfaces. Instances have been reported in which recovery followed the drainage of a purulent pleurisy.

I would refer those interested in the surgery of the heart to Costantini's paper,[4] from which I have drawn freely.

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RELATIVE BLOOD CELL VOLUME IN PULMONARY TUBERCULOSIS*

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Attempts at a clinical classification of patients with pulmonary tuberculosis have been rather arbitrary. In our studies on the pathologic physiology of the blood in tuberculous patients, a record was also made of the volumetric division of blood specimens into corpuscular (cell) content and plasma (fluid) content. The relative blood cell volume combines, among other things, the factors of cell numbers, cell size, and hemoglobin capacity. A classification of our cases grew out of the data obtained when the clinical symptoms were correlated with the relative corpuscular volume. That the blood changes in the tuberculous do mean something has long been the opinion of practitioners, because in pulmonary tuberculosis of the chronic ulcerative type a secondary anemia is, to a certain extent, one of the indexes of the patient's condition. This secondary anemia cannot, however, be proved to be consistently present, although alterations in the blood are known to play an important rôle in tuberculosis.

When the cell count and hemoglobin determinations failed to help in judging the condition of a patient, it was shown that our volumetric data were always significant and equally consistent for the same persons. The volumetric determination of the blood's corpuscular content by centrifugating oxalated blood at high velocities is an old method, and the technic and methods are reviewed in the more extensive handbooks of physiology. Whipple and his co-workers[1] have recently included this determination in their extensive studies on blood volume. Two elements of error are apparently present in our method. The question of diurnal variation in blood volume is closely bound up with the problem of the water balance of the body[2] because water is ingested in greater amount than all other substances combined and it is no less the chief excretion.[3] In spite of this fact, it has been demonstrated that the introduc-

* From the Research Laboratory, U. S. Tuberculosis Hospital, Soldiers' Home.

1. Hooper, Smith, Belt and Whipple: Am. J. Physiol. **51**: 205 (March) 1920.
2. Rowntree, L. G.: Physiol. Rev. **2**: 116 (Jan.) 1922.
3. Henderson, L. J.: The Fitness of the Environment, Am. Naturalist **47**: 105, 1913.

tion (by mouth) of large volumes of water into normal persons alters the blood concentration little, or not at all.[4] It is the nature of the organism to maintain its actively circulating fluid, the blood, in constant proportions.[5] Therefore, blood dilution does not readily occur, and this fact makes our method quite reliable. However, owing to the present uncertainty of *total* blood volume methods, it seems that a study of the relative distribution of the major constituents of the blood is of greater clinical value. This has also been emphasized by Barbour,[6] who says that the best criteria in blood volume changes are those which depend on the least soluble and most constant elements of the blood, namely, the corpuscles.

METHOD

Ten cubic centimeters of actively circulating venous blood was withdrawn and added immediately to 2 c.c. of 1.6 per cent. sodium oxalate solution which had been previously placed in a graduated centrifuge tube of 15 c.c. capacity. In order to mix the blood thoroughly, the tube was inverted three times, stoppered with cotton or cloth, and centrifugated at high velocity for half an hour or longer. The graduated tube of the Sahli hemoglobinometer can also be used for this work, in which case 2 c.c. of blood is added to exactly 0.4 c.c. of oxalate solution. The corpuscular deposit was subtracted from the total blood inserted in the tube, and the percentage by volume calculated. The age, weight, height, red blood cell count, hemoglobin value, duration of the clinical signs of tuberculosis, and the present condition of the patient were recorded. The relations of these factors and certain questions of technic will be considered in a later paper. Blood was taken from both healthy and tuberculous persons, whose ages ranged from 21 to 35, with a few up to 48 years.

REPORT OF CASES

Our first determinations showed that the relative blood cell volume was fairly constant for the same person over a period of time. Healthy or normal men had relative corpuscular volumes of from 44.5 to 48 per cent.; that is, the corpuscles centrifugated and sedimented out in a sample of blood were equivalent to from 44.5 to 48 per cent. by volume of the total sample of blood drawn. This substantiates the figures of Schmidt and Arronet,[7] who give 47.88 per cent. for man, and of Schäfer,[8] who gives 48 per cent. as an average normal.

Forty tuberculous men who were examined could thus be classified into three groups. Class A was the group whose relative corpuscular volume was above 48 per cent. which is the highest figure in the normal group, and the figures go up to 52.4 per cent.; about one half are in this class. The figures for Class B coincided with those for the healthy men. Class C was the group below 44.5 per cent., with some as low as 40 per cent.

The fact that the tuberculous patients could be grouped into three classes stimulated inquiry in reference to the clinical status and progress of the cases, particularly those in Class A and Class C. There are no cases of incipient tuberculosis at this hospital. Still further comparisons demonstrated that our method provided a far better index of the patients' status, than hemoglobin values and red blood cell counts (Table 1).

4. Underhill, F. P., and Pack, G. T.: Am. J. Physiol. **66**: 520 (Nov.) 1923.
5. Haldane, J. S., and Priestly, J.: J. Physiol. **50**: 296, 1916.
6. Barbour, H. G.: Am. J. Physiol. **67**: 366 (Jan.) 1924.
7. Schmidt and Arronet, in Nagel's Handbuch der Physiologie, 1910.
8. Schäfer: Textbook of Physiology **1**: 149, 1898.

Table 1 gives the averages for each group examined, and, in addition, the fourth column gives the resultant of the average red blood count multiplied by the average hemoglobin percentage. This gives a figure which is to a certain extent also an index of the status of the patients in the *group*. For example, the normals are 45; but Class B has less hemoglobin, and therefore it is 41.

TABLE 1.—*Blood Finding Averages for Each Group*

Group	Relative Blood Cell Volume, Range, per Cent.	Average Red Blood Cell Count	Average Hemoglobin, per Cent.	Red Blood Cell Count × Hemoglobin
Normals	44.5 - 48	4,752,000	95	45
Tuberculous, Class A	49 - 52.4	5,061,250	97	49
Tuberculous, Class B	44.5 - 48	4,732,000	86	41
Tuberculous, Class C	40 - 44	4,206,000	80	35

What is true, however, for an entire group does not apply to every individual in that group, as is readily seen by a comparison of those in each group. In Table 2, cases are shown in which there are high and

TABLE 2.—*High and Low Red Blood Cell Findings in Each Group*

Group	Red Blood Cells		Hemoglobin, per Cent.		Corpuscular per Cent.	
	High	Low	High	Low	High	Low
Normals	5,000,000	4,320,000	110	90	47.0	47.5
Tuberculous, Class A	5,168,000	4,689,000	95	80	50.9	52.4
Tuberculous, Class B	5,354,000	3,908,000	95	80	45.9	46.0
Tuberculous, Class C	4,998,000	3,868,000	80	70	41.0	42.0

low red blood cell counts in each class; but the corpuscular volume is about the same for the high as for the low ones. In other words, there is some other factor involved in classifying the groups, a factor apparently not related to either the red blood cell count or the hemoglobin. If the high blood counts, from 4,998,000 to 5,354,000, were examined, one would readily say that each of those concerned had a good blood picture, but the corpuscular volume percentage indicates the contrary, and is directly related to the clinical condition of the patient. An examination of the records shows that all in Class A are responding favorably to treatment and developing increased resistance. Those in Class C are doing poorly, and failing more or less rapidly. Class B patients must be analyzed further and watched for a period of time before any decision can be made, although, in general, the patients are in fairly good condition.

A question arises in reference to both Class A and Class C. For Class A there seems to be a similarity of corpuscular volume response to Weigert's law for the development of immune bodies in the blood stream; that is, more than enough are created. The men in Class A are doing well; there is something in the blood that does not stop at the normal range, from 44.5 to 48 per cent., but goes beyond it, overshoots the mark, as it were, up to 52.4 per cent., at least temporarily. The term "temporarily" is used for there are some that have been observed for a period of only five months. In Class C, on the contrary, there seems to be an exhaustion of some element.

SUMMARY

The chronic ulcerative type of pulmonary tuberculosis is quite commonly accompanied by, or rather, responsible for a disintegration of certain blood elements. The significance of the factor of relative corpuscular volume has not been emphasized heretofore.

The relative blood cell volume bears a constant relation to the patient's condition. A high value is found in those who are progressing favorably, and a low value in those who are rapidly deteriorating physically.

ROENTGEN-RAY THERAPY OF POLIOMYELITIS

PRELIMINARY REPORT *

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In the infantile paralysis clinic of the Hospital for Joint Diseases, during the summer and fall of 1923, there was a marked increase in the number of cases of poliomyelitis of recent development, as compared with previous nonepidemic years. For the most part, the new cases were very mild, the paralysis being limited to a few muscles, and the recovery of power being rapid. Very early in the summer, however, we were impressed by the frequency of hyperesthesia as a dominant symptom. This was noted in patients who entered the clinic both in the acute stage and in the period of early convalescence, after the febrile manifestations had subsided.

Hyperesthesia as a dominant symptom is characteristic of the polyneuritic type of the disease.[1] Biesalski states that this type is present in about 6 per cent. of the cases.[2] The percentage of our 1923 series was considerably higher than this. It was not, however, the mere presence of hyperesthesia that attracted our particular attention, but rather the marked persistence of the symptom weeks and even months after the subsidence of the acute stadium. The pain of which these patients complained added considerably to the difficulties of the early treatment. In several cases, there was spasm of the uninvolved muscles which threatened to cause the early development of marked deformities. Two cases exhibited such spasm of the hip muscles that there was absolute resistance to all motions of the hip, so that roentgenograms were made to exclude pathologic changes in the joint. Several of these patients showed severe spastic equinus, which was difficult to control in plaster or splints, owing to the hyperesthesia of the gastrocnemius muscle when subjected to the slightest stretching. We were unable to institute massage on account of the aggravation of the pain, and any form of electrical stimulation was manifestly contraindicated.

The frequency with which we encountered these cases and the many difficulties involved in carrying out any rational treatment caused us to seek some therapeutic means of relieving, or at least shortening, the hyperesthetic period in such patients. We had already begun, in 1922, a research on the effect of stimulating doses of radiation applied to the involved spinal segments in chronic cases of poliomyelitis, and it also was determined to submit some of the more persistent of the hyperesthetic patients to radiation.

Each year brings reports of new therapeutic applications of roentgen-ray and radium irradiation. During the last few years, our attention has been focused on intensive therapy, which utilizes for the most part the destructive and necrotizing powers of radiation. Current medical literature is replete with reports of intensive roentgen-ray and radium therapy and researches, totally eclipsing the no less important stimulative therapy with which we are concerned in this presentation.

The results in stimulative roentgen-ray therapy have been attributed to increased activity of metabolic processes, particularly phagocytosis, and to biochemical changes similar to those established in the production of immunity.[3] While the stimulating effects of small doses of roentgen and radium irradiation are generally conceded, and such doses and effects are being utilized daily, nevertheless, reports of histologic studies of effects of stimulating doses are entirely lacking.

It is therefore our intention to report, in the very near future, histologic studies of effects of stimulative roentgen-ray irradiation on various tissues, including nerve structures; these researches have already been started, but are not advanced to a stage permitting reporting on, at this time.

Studies of the biologic effects of small doses of roentgen irradiation have been made by Nakahara and Murphy.[4] The conclusions from their investigations may be thus summarized: Doses of roentgen rays will increase the number of lymphocytes in the blood and increase the number of mitotic figures in lymphoid organs, and mice so irradiated show a high resistance to cancer transplants.

In summarizing the effects of roentgen rays and radioactive substances on the living cell, Loeb[5] stated that "weak intensities of the rays may stimulate motility, excitability of nerves and metabolism; greater intensity may weaken or destroy them."

Obersteiner[6] observed that lethal doses of radium irradiation had no specific effect on nerve tissue. The derangements are fully explained by the circulatory disturbances consequent to injury to small vessels.

Okada's[6] investigations with very intensive irradiations, sufficient to produce ulcerations, found a pronounced immunity of nerve structures to radium.

Harley and Finze's[6] observations are undoubtedly most important. They conclude that nerve cells are not to be considered as sensitive to roentgen rays. Most of the changes occur in the blood vessels and consist principally in collections of red blood cells which have passed into the perivascular lymphatics, distending them, the extravasations frequently extending into the surrounding neuroglia.

These observations with intensive radium irradiation are interesting, and if one but applies the fundamental rules of proportion so concisely expressed by Loeb above, the rationale of irradiation therapy in poliomyelitis becomes obvious.

From the foregoing, it appears logical to conclude that roentgen-ray or radium irradiation might offer a singularly efficient and easily applied method of stimulating the diseased anterior horn cells of the cord. By actually stimulating metabolism in the cells and the adjoining tissues, definite relief of profoundly disturbing symptoms, as well as improvement in the paralysis, has been secured.

* Read before the orthopedic section of the Academy of Medicine, Feb. 15, 1924.

* From departments of roentgenotherapy and poliomyelitis, Hospital for Joint Diseases.

1. Osler, William: Principles and Practice of Medicine, New York, 1918, p. 336.

2. Biesalski, cited by Lange, Frita: Lehrbuch der Orthopadie, Jena, 1922, p. 194.

3. Witherbee, W. D.: Treatment of Focal Infection of the Throat by X Rays Compared with Surgical Removal of Tonsils and Adenoids, J. Radiol. 3: 129 (April) 1922.

4. Nakahara, W., and Murphy, J. B.: Studies on X-Ray Effects, J. Exper. Med. 35: 475-486 (April) 1922.

5. Loeb, Leo: Effects of Roentgen Rays and Radioactive Substances on Living Cells and Tissues, Am. J. Roentgenol. 9: 497-501 (Aug.) 1922.

6. Cited by Colwell and Russ: Radium and Its Action on Living Tissues, London, 1905, pp. 221-224.

New reports of clinical effects of stimulating doses of roentgen rays are of frequent occurrence and of constantly enlarging scope. How indispensible stimulative roentgen-ray therapy is in the dermatologist's practice is common knowledge. The efficacy of stimulative roentgen-ray therapy in clearing the throats of diphtheria carriers has been demonstrated by Hickey,[7] and later confirmed by others. More recently, stimulating doses of roentgen rays have been applied by Bowditch and Leonard [8] and others in the treatment of whooping cough, with apparently most satisfactory results. The value of stimulative roentgen therapy in surgical tuberculosis is indisputable; it is practiced almost uniformly throughout Europe and extensively in America.[9]

In a previous article,[10] one of us called special attention to the therapeutic advantages of stimulating doses of roentgen ray. Special attention was called to the analgesic and antispasmodic effects of this type of therapy, as well as the curative effects, and the case reports included such improvements and cures as definitely to indicate roentgen-ray therapy as a most useful agent in the surgeon's and the orthopedist's armamentarium. The gratifying and frequently spectacular results led us to apply stimulating doses of roentgen irradiation in recalcitrant cases of poliomyelitis.

The doses used have been stimulating only and applied with crossfire-filtered technic to the spinal segments involved. Treatments were given at weekly intervals with the following factors: from ten to fifteen minutes' duration; 4 mm. aluminum filter; 5 ma. and 100 kilovolts, from 12 to 15 inch distance. Exposures were made alternately on the anterior and the posterior surfaces of the body at the level of the involved spinal segments.

The types of cases treated may be divided into two general classes—one, in which stimulation of the diseased anterior horn cells was desired, with the objective of improvement in the paralysis, and a second, in which the irradiation was given to overcome the persistent hyperesthesias so far unresponsive to any form of therapy.

CASES OF CHRONIC PARALYSIS

This investigation was confined to a series of cases of chronic poliomyelitis that had remained in a stationary stage for a sufficiently long time to preclude much hope of further improvement. This work was instituted on the hypothesis that even in such cases of poliomyelitis with severe paralysis, there may exist, in the anterior horns of the involved segments of the cord, nerve cells of diminished vitality, but not wholly necrotic, which might be influenced by stimulating doses of radiation. If such an effect could be secured, if only to a slight degree, this therapeutic measure would be of inestimable value in the treatment of severe cases in the chronic stage in which little or no muscle power is present.

Pathologic sections of affected areas of the spinal cords taken from patients with paralysis of long standing furnish enough evidence to justify an attempt to confirm this hypothesis on a partially empiric basis. Many such sections show the ganglion cells of the anterior horns diminished in number and size, but not entirely obliterated. There is, in addition, a widespread sclerosis.[11] However, the vascular supply of the anterior horns is not obstructed. The degenerative changes are the result of pressure necrosis, and are not due to thrombosis.[12] Radiation in the presence of such a pathologic condition is, we feel, not without a definitely logical foundation. Roentgen rays in proper dosage have a proved stimulating effect on cell metabolism. It is also an established fact that the roentgen rays will influence a lysis of fibrous tissue. If either one of these effects can be obtained by radiation of the involved spinal segments in old cases of poliomyelitis, we should, with some logical basis, expect improvement, provided the muscles have not become entirely fibrosed during the period of inactivity.

REPORT OF CASES

CASE 1.—H. S., a girl, aged 2 years and 8 months, became ill, July 8, 1921, at the age of 8 months, with a high fever which lasted for four days. There was no pain, and no severe general symptoms. Paralysis was first noticed on the fourth day; it extended rapidly, involving both lower extremities severely; there was mild involvement of the abdominal muscles and the spinal muscles. When examined in our clinic, March 12, 1923, the child had severe paralysis of both lower extremities, the paralysis being apparently in the stationary stage. The child was receiving massage and electrical treatment, but was wearing no apparatus. On account of the severity of the paralysis, there was little deformity present. The left side was the most severely involved. On this side there was complete paralysis of the flexors and extensors and the internal rotators of the thigh, the extensor quadriceps and the anterior and posterior tibial muscles.

We decided to submit the child to stimulating doses of roentgen rays. According to the technic described herein, the child was given a series of treatments, the spinal segments being irradiated from the upper level of the twelfth dorsal to the lower level of the second lumbar vertebra. Eleven treatments were given over a period of four months.

The immediate effect of the treatment was the production of slight roentgen-ray sickness with malaise, and occasional vomiting after each treatment. A gradual but definte improvement was observed in each of the subsequent examinations. At the most recent examination, Feb. 1, 1924, the flexors and extensors of the thigh, the internal rotators, and the extensor quadriceps on the left side, which had been completely paralyzed on the first examination, showed a moderate degree of activity. A general improvement in the power on the right side was apparent. This child, at the beginning of treatment, was unable to stand without being held upright, and without exhibiting excessive genu recurvatum on both sides. The child is now able to stand upright, and is making attempts to walk. The genu recurvatum is present, but it is noticeably lessened in degree.

This patient has showed marked improvement under treatment, and the mother, an intelligent woman, confirms our opinion that the improvement had its inception with the institution of the roentgen-ray treatments. We are at present beginning a second series of irradiations on this patient, and hope to report further on the results.

CASE 2.—H. O., a boy, aged 3 years, suffered an onset of paralysis, Nov. 11, 1922, the illness beginning with pain in the back, fever and headache. The paralysis was first noticed on the second day of the disease; it involved both legs; on the third day, the right arm was involved. The child received almost continuous hospital treatment until August, 1923; and

7. Hickey, P. M.: Treatment of Diphtheria Carriers by Means of Roentgen Ray, Am. J. Roentgenol. **9**: 319 (May) 1922.

8. Bowditch, H. J., and Leonard, R. D.: Treatment of Pertussis by X-Ray, Boston M. & S. J. **188**: 312 (March 8) 1923.

9. The limited scope of this paper does not permit further reference to clinical reports of additional recent applications of stimulated roentgen-ray therapy. Other reports are given by Kemp, C.: Roentgen-Ray Treatment of Subacute Inflammatory Processes, Deutsch. Ztschr. f. Chir. **176**: 272 (Nov.) 1922. Van Ree, A.: Roentgen-Ray Treatment of Surgical Tuberculosis, Nederl. Tijdschr. v. Geneesk. **2**: 1985 (Nov. 13) 1920. Busit, Aristide: Roentgen-Ray Treatment of Malaria, Policlinico, sez. prat. **30**: 53 (Jan. 8) 1923. Schrader, R.: Treatment of Erysipelas with Roentgen Rays, Therap. Halbmonatsh. **35**: 600 (Oct. 1) 1921. Evans, W. A.: X-Ray Treatment in Diseases of the Ear, Nose and Throat, J. Michigan M. Soc. **22**: 65 (Feb.) 1923. Dunham, K., and Norton, Vera: An X-Ray Study of the Absorption of Tuberculosis Exudates Within the Lung, Am. J. Roentgenol. **10**: 112 (Feb.) 1923.

10. Philips, H. B., and Finkelstein, H.: Roentgen-Ray Therapy in Chronic Diseases of Bones, Joints and Tendons, New York M. J. **114**: 448 (Oct. 19) 1921.

11. Holt, L. E.: Diseases of Infancy and Childhood, New York, 1918, p. 810.

12. Dana, C. H.: Nervous Diseases, New York, 1915, p. 238.

from then until his admission to our clinic, in November, 1923, he was treated in the home. On the initial examination there was present a complete paralysis of both lower extremities. We were unable to detect a single active muscle below the hips. There was also complete paralysis of the lumbopelvic muscles, and weakness of the dorsal and abdominal muscles. The child was unable to sit upright without assistance. Irradiation was started, November 28. The spinal segments from the twelfth dorsal to the second lumbar vertebra were radiated. Five treatments were given, at one week intervals. December 17, eleven days after the first irradiation, very slight power was detected in the extensors of both thighs. December 24, after the child had received four treatments, slight power was observed in the internal hamstrings and in the flexors and extensors of the toes on the right side, and in the hamstrings on the left side. Jan. 7, 1924, one month after the inception of the treatment and after the child had received five treatments, definite activity was observed in the following muscles:

Right side: Flexors and extensors of the thigh, extensor quadriceps, hamstrings, flexors and extensors of the toes.
Left side: Flexors and extensors of the thigh, extensor quadriceps, and hamstrings.

The most marked improvement was shown on the right side. There can be little doubt as to the general improvement in this case after the inception of roentgen-ray treatment. The child, on the last examination, was able to sit up for a brief period without support. The mother remarked on the last mentioned feature as definite evidence of improvement. We expect to continue irradiation in this case.

CASE 3.—B. B., a boy, aged 10 years, became ill, Sept. 12, 1923, with headache, followed by a fever which reached 103 F. There was vomiting during the first day of the illness, and the child complained of pains in both legs. Paralysis was first noticed on the second day; both lower extremities very rapidly became severely involved. He was first brought to our clinic, October 12, one month after the onset. At this time, he had complete paralysis of the right lower extremity, and severe involvement of the left lower extremity. He was placed under our routine treatment for early cases of poliomyelitis, which in this case included massage, sinusoidal electric stimulation, and proper splinting to prevent contractures. Under this treatment there was a gradual increase in power in the partially paralyzed muscles of the left side; but, with the exception of very slight power noticed in the flexor and extensor muscles of the thigh, there was no activity regained in the totally paralyzed muscles on the right side.

In view of the severe involvement of the right leg and thigh at the end of the fourth month of the disease, this patient was irradiated, Jan. 10, 1924. January 31, after he had received two irradiations, there was a decided increase in the power of the flexors and the extensors of the right thigh, slight power in the abductors and the external rotators, and marked action in the quadriceps extensor on the right side. The left side continued to show improvement. April 11, after he had received nine irradiations, there was a general improvement in all of the muscles of the left side. On the right side there was marked activity of the flexors, the extensors, the abductors, the adductors and the rotators of the thigh, and the quadriceps femoris showed activity. There was no shortening present and very little atrophy on the right side.

HYPERESTHETIC CASES

In this group, we submitted only those patients to irradiation in whom the hyperesthesia existed as a dominant symptom in undiminished severity for a period of at least a month. In these subjects, the elimination of the pain was essential before contractures could be corrected or even prevented, and rational treatment of the paralytic phenomena was thwarted by the pain these children suffered whenever handled.

Prior to irradiation, the patients in the cases cited below had been handled by immobilization on frames, a modification of the Jones frame, with the equinus corrected, so far as the sensitivity of the gastrocnemius soleus group would permit, being used in most cases; massage had been interdicted, and no electrical stimulation had been used. In spite of this sedative treatment, the patients failed to show any improvement in the hyperesthesia.

CASE 4.—A. A., a girl, aged 6 years, became ill, July 7, 1923, with marked stiffness of the neck, followed by fever which lasted for three days and reached 103 F. Paralysis was noticed in both feet on the third day. On the fourth day, the child complained of severe pain in both legs. This pain had persisted for more than a month when she entered our clinic. On the initial examination, she showed marked hyperesthesia of the muscles of both lower extremities. Motion of any of the joints caused the child to cry from pain, and very slight pressure on the muscles elicited pain. Detailed muscle examination was rendered impossible on account of the hyperesthesia. A complete paralysis of the quadriceps, the hamstrings, the anterior and the posterior tibials and the peronei on both sides was present. The gastrocnemius soleus group on both sides were active and hyperesthetic. Bilateral equinus was present.

In view of the hyperesthesia, irradiation of the involved spinal segments was instituted, August 16. The child was given two treatments, on the 16th and the 23d, respectively. August 27, when the child was examined, the hyperesthesia was markedly diminished, so that it was possible to correct the equinus and put both feet in posterior plaster splints without eliciting painful reactions in the calf muscles. After this, there was no return of the hyperesthesia, and it was possible to institute massage and electrical treatment. The total duration of the hyperesthesia up to the institution of the roentgen-ray treatment was forty days. The duration of the hyperesthesia after the institution of treatment was eleven days.

CASE 5.—A. S., a boy, aged 2 years and 9 months, became ill, Sept. 19, 1923, with fever, which rose to 104 F. on the third day. The child was lethargic and slept most of the time. Paralysis was first noticed on the third day; it involved one hand and one foot. From the fourth to the seventh day, there was widespread paralysis, involving all four extremities and the laryngeal muscles. December 4, on admission to our clinic, the child was markedly hyperesthetic, and cried continuously while being examined. There was spastic fixation of both hips in abduction and very slight flexion. Motion of the hips was resisted in all directions. On account of the hyperesthesia, an accurate, detailed muscle examination was impossible. There was a severe paralysis of both lower extremities below the hips. The child was placed on a frame with the feet held in a neutral position, but the hyperesthesia continued undiminished. December 17, on account of the marked spasm and pain in both hips, a roentgen-ray examination of the hips was ordered; it was reported negative. It was noticed, the following week, that there was a very slight, but noticeable, diminution of the hyperesthesia in the hips. We are of the opinion that this can be attributed to the small amount of radiation which the child received when the hips were roentgenographed. Jan. 18, 1924, on account of the undiminished persistence of the hyperesthesia, the patient was referred for irradiation. January 23, he was irradiated for fifteen minutes, from the tenth dorsal vertebra to the coccyx. For three days following this treatment, the mother reported that there seemed to be some increase in the pain. The child vomited several times during these three days. January 30, on examination a marked improvement was noticed. For the first time during the course of the disease, the child submitted to examination without crying, and, in fact, was playful and smiling. The spasticity and sensitivity of the hips was markedly diminished. In addition to the sensory improvement there was a distinct increase in the muscular power in both legs. The duration of the hyperesthesia up to the institution of irradiation was 126 days; marked improvement was noticed seven days after irradiation. The patient is to receive further irradiation.

CASE 6.—M. F., a boy, aged 10 years, in October, 1923, began to suffer with pain and stiffness in the right hip. The following day, he had headache and vomited, and the temperature rose to 102 F. Paralysis was first noticed on the fourth day. Both lower extremities were severely involved, and the right upper extremity was involved to a

lesser degree. When first examined by us, December 22, the child was exquisitely hyperesthetic in both lower extremities, in spite of the fact that he had been confined to bed on his back since the onset of the disease. The child was observed until the beginning of March, 1924, and during this time was treated by splinting of the lower extremities, with absolute recumbency. He was also given very gentle massage and warm salt baths, during which he was encouraged to attempt motions of the paralyzed extremities. The hyperesthesia, however, continued with but very little diminution.

Feb. 28, 1924, the patient was irradiated at the level of the lumbosacral cord areas. March 9, there was a definite improvement in the pain. On examination, it was possible to flex the hips and knees to right angles without eliciting pain. Prior to this, pain was elicited by very slight motion of the hips or knees on both sides. March 31, after the child had received the second irradiation, there had been malaise and vomiting and a slight improvement in the hyperesthesia since the previous examination. This case has exhibited a distinct amelioration of the painful manifestations, after a persistence of the hyperesthesia for four months prior to the institution of irradiation.

CASE 7.—A. G., a girl, aged 3 years, was taken sick, about the middle of September, 1923, with vomiting and fever, which reached 102 F., and which lasted four days. At the onset of the disease, the child complained of pain in both hips. On the fourth day of the illness the child was unable to stand on her feet or to sit erect. A diagnosis of poliomyelitis was made at a local hospital after a lumbar puncture had been made.

When first seen by us, Feb. 7, 1924, the child exhibited an apparently complete paralysis of the anterior and the posterior tibial and of the peroneal muscles on the left side, and a decided weakness of the anterior and the posterior tibial muscles on the right side. The dominant symptom, however, was the exquisite hyperesthesia of the lower extremities. Both knees and hips were held spastically fixed, the left hip in flexion adduction, and the right hip in flexion abduction. The knees were flexed slightly. Any attempt to move these joints elicited pain. Roentgenograms of the hips showed no pathologic change in the bone.

The child was irradiated, February 7 and 21, after having been hyperesthetic for more than four and a half months. February 29, after having received two irradiations, there was a very distinct improvement in the hyperesthesia. At this examination, it was possible to flex the knees and thighs without eliciting much pain. In this case, however, there has not been a total cessation of the pain. The patient is still under observation.

SUMMARY

Notwithstanding the fact that this is only a preliminary report, the results obtained are sufficiently satisfactory to warrant further investigations of this character on a larger scale.

We have studied the effects of irradiation in two distinct phases of poliomyelitis, namely:

1. In the residual paralysis in patients who, under the usual therapy, have ceased to show improvement in muscular power. Three patients with severe paralysis, each of whom were irradiated, had failed to respond to the usual physical therapeutic measures. These patients all showed improvement following a series of irradiations of the spinal segment. One of these patients had had total paralysis of both lower extremities for more than a year, and exhibited a return of some activity in muscles on both sides after having received four irradiations. The other two patients showed improvement, although perhaps less striking than in the case cited. We would emphasize the fact that, apart from slight manifestations of roentgen sickness, none of these patients exhibited any deleterious effects on the neuromuscular system. Up to the present time, it would appear that the treatment is without danger when properly controlled.

2. In the hyperesthetic cases following the acute phase of the disease. Four patients exhibiting marked persistent hyperesthesia were irradiated with extremely encouraging results. All of these patients showed marked improvement within a week after the first irradiation of the involved spinal segments.

CONCLUSION

We therefore feel justified in concluding that:

1. Roentgen-ray therapy offers a method of shortening the period of hyperesthesia following the acute stage of poliomyelitis.

2. Roentgen-ray therapy offers a singularly safe and easily applied method of stimulating diseased but viable anterior horn cells in poliomyelitis in the stationary stage.

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KIDNEY INFECTION DUE TO MICROCOCCUS PHARYNGITIDIS-SICCAE *

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Infection of the upper urinary tract by *Micrococcus pharyngitidis-siccae* must be exceedingly rare, for, so far as we have been able to determine from the literature at our command, the occurrence of such an infection has never been reported. A case of acute, malignant, vegetative mitral endocarditis, due to this organism, has been recently reported by Schultz.[1]

Lingelsheim [2] mentions this organism as one of those less frequently found in cultures from the nasopharynx in cases under examination during an epidemic of meningococcus meningitis, but his report does not state whether this diplococcus was found in cases actually diagnosed as meningitis. He makes no suggestion as to its being other than a saprophyte of the pharynx.

According to Jordan,[3] this small, gram-negative coccus is found on the mucous membrane of the respiratory tract; it grows at room temperature as well as at 37 C.; it forms white, firm, dry adherent colonies, and it ferments saccharose, lactose and mannitose.

The accompaning case report is worth while not only because it records an infection of the kidney due to an exceedingly rare cause, but also because it illustrates the importance of a thorough study of every case in which there is a disturbance in the proper functioning of the kidney.

REPORT OF CASE

History.—J. E. R., a man, aged 29, who entered the hospital, May 31, 1923, stated that he had suffered with a steady, dull pain over the left side of the abdomen, extending to the loin; frequency of urination associated with burning; and loss of weight. He had had several small boils on the arms and on the back of the neck in 1912, 1913 and 1914; these disappeared without treatment. Two carious teeth had been removed in December, 1922. These were the only incidents of infection.

During a hike in June, 1918, the present illness began with a dull ache over the left side of the abdomen, associated with a mild frequency of urination during the day, and somewhat excessive at night. The pain was noticeable only when walk-

* From the Genito-Urinary Service of U. S. Veterans' Hospital No. 76.

1. Schultz, O. T.: Acute Vegetative Endocarditis with Multiple Secondary Foci of Involvement Due to Micrococcus Pharyngitidis-Siccae, J. A. M. A. 71: 1739 (Nov. 23) 1918.
2. Lingelsheim: Klin. Jahrb. 15: 409, 1906.
3. Jordan, E. O.: A Text-Book of General Bacteriology, Ed. 7, Philadelphia, W. B. Saunders Company, 1922, p. 251.

ing. The patient stated that his rest at night was not disturbed, nor was he required to be absent from duty. Five weeks later he was subjected to heavy shell fire, and sought safety in a shell hole, where he remained for sixteen hours. As a result of this exposure, he was thoroughly chilled and had to be carried back to camp. This exposure markedly accentuated the distress in his side for a day or so. It then decreased, and was almost forgotten in the excitement of "going over the top," two days later. His condition caused no interference with his duties for the next three weeks; but a short train ride again sharply called his attention to the trouble. In August of the same year, he suddenly developed a urinary obstruction, which persisted for one day. This condition was relieved by the expulsion of a medium-sized stone.

In October, 1918, he was sent to a hospital for a gunshot wound of the left knee. A severe inflammation of the joint followed, but no operation was performed until the removal of the shell fragment in February, 1919. While in the hospital, he experienced an increase of the pain in the left side, and in the frequency of urination, amounting to from six to eight times during the day and from three to five times at night, which necessitated the constant presence of a urinal in the bed. Toward the end of the year some improvement occurred, but the pain never wholly disappeared. The bladder trouble diminished sufficiently to allow him to leave his bed. In January, 1919, he was transferred on a train from a French to an American hospital. As a result, the pain in the side became much more severe, and there was a noticeable extension into the groin. The severity of the distress underwent very slight variation. It persisted day and night as a dull pain, which had a tendency to remain localized between the left costal border and the anterior portion of the iliac crest. It was never suggestive of colic, and was always associated with a marked tenderness of the entire left side. He left the hospital the latter part of February, with some abatement of the severe symptoms and with considerable gain in weight and strength. After a month's convalescence in a casualty camp, he was sent back to the United States, arriving at Camp Upton, N. Y., May 5, 1919. The ocean trip was uneventful except for the fact that during the last day considerable fever developed, the pain increased, and urination became more frequent. This attack lasted for several weeks. May 14, the left kidney was explored through an oblique lumbar incision, and found to be full of pus. About 1 quart of the purulent fluid was immediately drained off, and a rubber tube was inserted into the kidney and left in place for four weeks. A number of small calculi were expelled through the tube in the course of a few weeks. The patient stated that the operation had failed to relieve him. In June, 1919, there was a second obstruction of the urethra by a stone, which was removed with a lithotrite under general anesthesia. The patient's general condition gradually improved, and he was able to leave the hospital in July. The wound had closed and there was little pain, but there was still considerable frequency of urination but no burning. Cloudiness of the urine was still present. The patient worked as a printer and managed to remain in his position for ten months, losing only an occasional day's time. About November, 1919, the urine again became cloudy and irritating; the frequency rose to ten times a day and from three to five times at night; periods of discomfort, with frequent chills, came on, and the patient's weight dropped from 130 pounds (59 kg.) to 98 pounds (44.5 kg.). During 1921 and 1922, cystoscopy was done several times, but the patient, when we saw him, did not know the results of these examinations. From May, 1922, until May, 1923, he led an outdoor life, felt almost well, and gained 35 pounds (16 kg.). The pain in the left side remained unchanged, although the frequency of urination decreased considerably.

Examination.—The patient was of medium height and was fairly well developed, but considerably underweight. His skin was warm and dry, with a peculiar sallow color. There was an oblique scar, 4 inches long, over the left loin, a result of the former kidney operation. It had thoroughly healed and was neither bulging nor tender. Much tenderness was present over the left side of the abdomen, and was less severe in the loin. Palpation elicited a sharp muscle spasm. Neither kidney was palpable, and the course of the ureters and the suprapubic region were normal. The rest of the physical examination was negative.

Blood examination, June 21, 1923, showed white blood cells, 21,400; August 30, 16,200. Wassermann tests were negative on two separate examinations. Blood cultures were negative in June and July, 1923. July 14, 1923, the blood analysis showed: urea, 23.6; creatinin, 0.15; uric acid, 4.6. July 30, it showed: urea, 25.0; uric acid, 5.4; creatinin, 0.2 mg. per hundred cubic centimeters.

Urinalysis revealed ropy mucoid material resembling the addition of sputum. On microscopic examination an enormous number of pus cells became visible, but there were no red blood cells. An occasional hyaline cast was present. Smears for tubercle bacilli were negative. Guinea-pig inoculations were negative for tuberculosis. The culture yielded a pure growth of *Micrococcus pharyngitidis-siccae.*

Roentgenograms on plain films revealed a large, rounded mass in the usual position of the left kidney, roughly circular in outline, and about 14 or 15 cm. in the vertical diameter. Several small, dense shadows were visible within the borders of the mass.

Cystoscopy revealed the capacity of the bladder as being 250 c.c. There was much congestion of the entire base, but no ulceration, stone or tumor evident. Both ureteral orifices were normal, and No. 6 catheters were passed into the kidney pelves without difficulty or obstruction. The urine from the right catheter was clear and of amber color, and flowed in about the usual rate, with no pus or red blood cells. The left kidney failed to deliver urine at first; repeated priming and aspiration produced a small amount of thick, grayish, semisolid substance, in nature not unlike tapioca pudding, and extremely foul-smelling. Ten or fifteen minutes later, the flow of thinner fluid began and gradually changed to the consistency of water. The left side constantly contained large amounts of pus.

Results of Examinations of Specimens of Urine from Bladder and Kidneys

	Bladder	Right Kidney	Left Kidney
Culture	Heavy, sticky growth	Sterile	Heavy, sticky growth
Albumin	Trace	Trace	Positive
Casts	Negative	Negative	Negative
Red blood cells	Negative	Occasional	Negative
Pus	100 cells per 4 mm. field	Few	75-100 cells
Phenolsulphonephthalein Test:			
First appearance		3 minutes	None
First 30 minutes		13%	None
Second 30 minutes		7%	None
Total		20%	None

The pyelogram showed a complete destruction of the kidney.

The cultural characteristics of the organism isolated from the urine of the bladder and the left kidney were as follows: Colonies on blood agar were well defined, white, small and dry; the growth was extremely tenacious, behaving like a drop of soft chewing gum in snapping off from the platinum loop when lifted up. The colonies could not be teased apart, and emulsification in saline solution was impossible. With one exception, the fermentation reactions coincided with the ones given by Zinsser,[4] as pertaining to *Micrococcus pharyngitidis-siccae.* The result of the fermentation tests with the more or less commonly used carbohydrates was as follows: dextrose, acid; maltose, acid; levulose, acid; saccharose, acid; lactose, acid; galactose, negative; mannite, acid; adonite, negative; dulcitol, negative; raffinose, negative; arabinose, negative. The organism was a small gram-negative coccus occurring in pairs, normally found as a harmless organism in the pharynx.[5]

Clinical Course.—The patient stated that he had had a steady, severe pain over the left side on the evening following the cystoscopic examination. The pain increased decidedly the next day, and was accompanied by a sensation of fulness in the region of the left kidney. Vomiting was frequent. The urine had decreased in amount, was much clearer, and showed only a few pus cells on microscopic examination. This strongly suggested that the left ureter had become completely

4. Zinsser, Hans: Textbook of Bacteriology, Ed. 5, New York, D. Appleton & Co., 1922, p. 535.

5. Schultz (Footnote 1) reported a case of fatal endocarditis with multiple metastatic foci in liver, spleen and kidneys, in which the blood culture showed a pure growth of this organism.

obstructed. The following day there was evidence of beginning toxemia, as manifested by increased vomiting, intractable hiccup, restlessness and mental confusion. A definite fulness could be palpated over the left side of the abdomen; the old kidney scar was bulging, and the entire region was extremely tender and rigid. The temperature rose to 39 C., with a pulse rate of from 100 to 110. A diagnosis of acute obstruction of the left ureter was made. Several attempts to drain the left kidney by ureteral catheterization failed completely, as it was impossible to enter the pelvis, nor could urine be secured from this side. Our diagnosis was confirmed by further roentgenograms, which revealed an enormous increase in the size of the mass in the left side.

Operation.—Three days after the onset of the obstruction, the left kidney was exposed through an oblique lumbar incision and found to be an enormously dilated, tense, thick-walled sac, extending from below the iliac crest to well up behind the tenth rib. It was firmly adherent on all sides on account of dense and vascular adhesions. Efforts toward freeing and delivering the mass produced such profuse hemorrhage that complete removal was out of the question. A trocar puncture released about 1,500 c.c. of a thick, whitish fluid, which later changed to thick, creamy pus. Several large rolls of gauze were packed tightly around the outside, a rubber tube inserted into the sac, and the wound loosely closed. A specimen of the aspirated fluid on culture yielded an organism identical with that previously secured from the bladder and left kidney. Direct smears and guinea-pig inoculation were negative for tubercle bacilli. A small, smooth calculus, about the same size as that seen in the first roentgenograms, which escaped through the drainage tube several weeks later, consisted of phosphates.

ACUTE APPENDICITIS IN CHILDREN *

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This paper is based on an analysis of fifty-eight cases of acute appendicitis in which we have operated at the University Hospital, since September, 1920. These were consecutive cases, the last patient having been operated on during the first month of the present year. All of the cases were diagnosed as acute appendicitis, and the pathologic report confirmed the operative diagnosis. Cases in which a diagnosis of acute appendicitis was made but was not confirmed by the pathologic examination have been omitted. Of these there were two cases.

DIAGNOSIS

Diagnosis is complicated in children for numerous reasons. Small children cannot clearly describe symptoms, nor do they accurately localize pain. The classical symptoms of pain, nausea and vomiting, tenderness, rigidity and elevation of temperature are frequently observed in children who are not suffering from appendicitis.

Many writers on the subject have erroneously stated that the pain of appendicitis in children varies because of the variations in the position of the appendix, depending, as it does, on the rotation of the colon and the descent of the cecum. This is, however, fallacious since the appendix receives its nerve supply through the abdominal sympathetic in embryonic life. This innervation is a constant one and does not depend on the anatomic position of the appendix. Disturbed action of the sympathetic nervous system as the result of a lesion in the appendix is the chief cause of symptoms as long as the inflammation is localized to the appendix. The sympathetic fibers make constant connections with the various spinal segments. Since the sympathetic does not contain pain fibers, the sensation of pain is in some way associated with a reference of the stimulus to the cutaneous distribution of the spinal nerves, with which the sympathetic makes its central connection.

Hurst has pointed out that tension is the only adequate stimulus that produces true visceral pain. Therefore it is probable that tension within the appendix initiates the stimulus that calls forth the sensation of pain in the terminal distribution of the tenth and the eleventh intercostal nerves. Pain, therefore, which is an invariable symptom of appendicitis, is at first referred to the region of the umbilicus.

When the inflammation spreads to contiguous structures, the pain is felt in the right iliac fossa or in whatever location the appendix happens to be. It is this secondary pain that is diagnostic as to the exact anatomic position of the organ. This pain is an expression of irritation of the somatic sensory nerves and the result of inflammation of the subperitoneal tissues.

The sudden relief of the primary pain denotes perforation or gangrene. It is not to be looked on as of good prognostic import. Rather, it is to be looked on as the patient's defeat, since the lesion has passed from one of a benign to that of a malignant character.

Tenderness is difficult to interpret in the fretful child. It is apt to be deceiving, and is more often exaggerated than underestimated.

Rigidity of the involuntary type is extremely important. Rigidity is a reflex protective mechanism. Just as long as the inflammation is appendicular in character, the rigidity will remain in the right lower abdomen. When, however, the inflammation spreads beyond the appendix, the rigidity will depend on the amount and the location of peritoneal extension.

In the present series of cases, we have found that the preceding symptoms and signs plus a marked increase in the leukocytes are the most dependable factors in making a diagnosis. The average white cell count was 16,920 cells per cubic millimeter. This is in close accord with Motley's figure of 17,400 per cubic millimeter. There is nearly always an increase in the polymorphonuclear leukocytes, which ranges from 80 to 96 per cent. Routine differential counts were not made, but, in those recorded, not one was found under 80 per cent.

Nausea and vomiting are not to be relied on as of diagnostic import in children. After the age of puberty, they have a definite clinical significance, but before this the frequency with which they occur in childhood makes their presence only confirmatory in character. In this series, patients having fever numbered fifty-four; patients complaining of nausea, forty-four; patients complaining of vomiting, forty-three; patients complaining of constipation, thirty-four, and patients purged with one or more cathartics, twenty-nine.

The diagnosis is not always an easy one. The surgeon must always be openminded in these cases. It is important to rule out infections of the pleura and lungs. Nevertheless, in those patients admitted with a diagnosis of acute appendicitis, the discovery of a pulmonary infection should not cause an immediate reversal of the diagnosis. In two of our cases, there was coincidental lobar pneumonia and acute appendicitis.

In infants, severe appendicitis may occur without any of the classical symptoms. In older children, the reaction to inflammation is apt to be more severe than in the adult.

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Rectal examination is extremely important, since the pelvis is shallow, a condition that allows of easy palpation. Then, too, in many children the cecum lies deep in the pelvis, which makes palpation easy. In these children, urinary symptoms may predominate owing to the proximity of the appendix to the bladder wall.

AGE INCIDENCE

The youngest child operated on in this series was 4 years old. Only 34.4 per cent. of the cases occurred in the first ten years. It will also be seen that the number of cases increased in nearly a step-ladder fashion. In Alexander's series, 49.2 per cent. occurred from the sixth to the tenth year. The point to be emphasized is that although the frequency increases as puberty is reached, infants are not immune to the lesion. Thus, Dixon reported a case in a 24 day old child. Pollard, Griffith, Goyens, Demme, Savage and Elder have reported verified cases in the first year of life.

The ages in our series agree in general with those of other authors in that the disease is uncommon under the age of 5 and that below 3 years of age the disease is certainly rare.

PROGNOSIS

The prognosis in these cases is similar to that in the adult. If the diagnosis is made early and the operation performed before the inflammation has spread to contiguous structures, the outcome is almost universally favorable. In the present series of cases, the average number of days since the onset of the attack was 3.3. The average number of previous attacks of which a clear history was obtained was 2 +. Children do poorly under the expectant treatment. The omentum is small, and the tendency to localization of peritonitis is not as great as that of the adult. It is difficult to carry out the Ochsner method in these patients. Acidosis from starvation occurs early, and the sepsis intensifies it. The vital resistance of the peritoneum is less, and the danger of metastatic infection greater.

It is therefore the policy of this division to operate in all cases in children regardless of the time limit since the inception of symptoms or the condition of the patient on admission.

MORTALITY

Of the fifty-eight patients in this series, fifty-four recovered and four died, a mortality of 6.8 per cent. This mortality is to be compared with that of Simpson, who reported thirty-four cases, with five deaths (14.7 per cent.). Mitchell reported forty cases in which the inflammation had spread to contiguous structures, with a mortality of 25 per cent. Motley's series included thirty-seven children, with two deaths (5.4 per cent.). Gray and Mitchell reported 200 cases, 126 of which were acute, with a mortality of 15 per cent. Dowd, in 1905, reported seventy cases, with a mortality of 10 per cent.; in 1907, fifty cases, with an 8 per cent. mortality, and in 1910, sixty-one cases without a death. Alexander reported a series of 500 cases of acute and chronic appendicitis, with a mortality of 3 per cent.

There is no doubt that the mortality in children has been reduced in the last decade. This reduction is even more striking than in the adult. In 1897, Karewski reported the results of six continental surgeons in acute appendicitis in children under 5 years of age. The lowest mortality was 15 per cent. and the highest 66.6 per cent.

Twenty-eight (48.3 per cent.) of the patients in our series had peritoneal extension at the time of operation. Twelve of these (42.8 per cent.) had local peritonitis, and seven (25 per cent.) had generalized peritonitis. In this series there were four deaths (14.2 per cent.).

In thirty cases, the inflammation was localized to the appendix. In this series there were no deaths.

Twenty-nine (50 per cent.) of the patients were purged before operation. In nearly every case the purgation had been repeated.

OPERATION

As previously stated, we believe firmly that operation should be performed in all cases of acute appendicitis in children, regardless of the stage of the disease or the condition of the patient. The only exception is the apparently moribund patient; and here, too, since the patient has absolutely no chance under expectant treatment, we feel that the surgeon should not hesitate to operate because of a possible increase in his operative mortality. Several of the cases in our series were extremely desperate, and the patients recovered after operation. We always use the McBurney or muscle splitting incision, since this permits easy access to the appendix and does not expose large areas of the small bowel. In many of these cases, no suture of the abdominal wall was attempted.

Thirty-six of the patients have been seen in our follow-up clinic, and in only one case was an incisional hernia observed. Even should an occasional hernia occur, it is preferable to drain thoroughly through a wide open wound than to use too little drainage through a partially closed incision.

In the very young children, it is extremely difficult properly to give enteroclysis; but we have had little difficulty with continuous hypodermoclysis. Sufficient doses of morphin have been used postoperatively to keep the patient quiet and, in carefully guarded doses given according to the age of the patient, we have never seen any harm result from its use.

The Fowler position has been used in the cases in which the inflammation was not localized, while in the others we have slightly elevated the head of the bed and kept the patient on his right side. The average duration of the child's stay in the hospital was eleven days, which is much shorter than the adult patient's with similar lesions on this service. We believe that this is an indication of the extraordinary recuperative powers of the child when the primary focus has been removed and the right iliac fossa thoroughly drained.

CONCLUSION

The lower mortality of acute appendicitis in children which has been reported in recent years is due to early diagnosis and early reference of the patient to a surgeon for operative intervention. The mortality can be further reduced only by an earlier differentiation of these cases from the conditions that simulate it, such as pneumonia, pyelitis, Pott's disease, gastro-enteritis, fecal impaction and intestinal obstruction. The mortality in our hands has been as low as, if not lower than, the mortality in the adult with a similar lesion.

The administration of purgatives before an absolute diagnosis has been established has been the cause of more harm than any other factor connected with the disease. If it is necessary to obtain an evacuation of the bowel before a diagnosis is established, we believe that adequate results can be obtained by the administration of an enema. One of the most important factors in establishing the diagnosis is a complete leukocyte count, since in this series it was found to be almost constantly high.

BRONCHIAL ASTHMA AND OTHER ALLERGIC MANIFESTATIONS IN PHARMACISTS

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There is a considerable accumulation of data in the literature on occupational idiosyncrasies, but comparatively little has been written concerning pharmacists and their tendency to acquire protein sensitization to the organic preparations that they handle. In view of the widespread interest that has been aroused by the subject of allergy and asthma in general and the ever increasing volume of literature on this subject, the scarcity of reports dealing with the subject under discussion is indeed surprising.

Idiosyncrasy following the ingestion of various drugs has been observed and discussed since the early days of medical science. This paper, however, deals only with the allergic manifestations due to contact with and inhalation of drugs.

In 1920, I[1] reported a case of true anaphylactic bronchial asthma in a pharmacist, aged 29, due to the inhalation of powdered ipecac engrafted on a recurrent seasonal bronchitis. Skin tests performed with the many drugs in powder form commonly used were negative, except pulvis ipecacuanhae et opii (Dover's powder), which gave a positive reaction. Powdered opium, ipecac and lactose—the constituents of Dover's powder—were then tried, giving a positive reaction only to ipecac in as weak a dilution as 1 : 100,000. The ingestion of ipecac produced no ill effects referable to the respiratory tract.

Widal, Abrami and Joltrain,[2] in 1922, reported two cases of ipecac sensitization in pharmacists. Contact with emetin induced eczema in a man, aged 34, and handling ipecac induced asthma in a man of 55.

Bernton,[3] in 1923, cited a case of sensitization to the protein of castor bean in a chemist, aged 27, who was engaged in a "drug and plant oil investigation" in the United States Department of Agriculture. Exposure to the dust of the castor bean was followed by itching of the eyes, lacrimation, sneezing and rhinorrhea, ending in an attack of asthma. A cutaneous reaction was obtained with a drop of the protein solution of the fat free castor bean in a dilution of 1 : 250,000. Of five other persons engaged in the same work and exposed to castor dust, only one showed a tendency to sneezing. The cutaneous reaction in all these cases was negative.

The preceding case reports seem to be the only references in the literature dealing with this subject. Urged by an impression that allergic symptoms in persons engaged in pharmaceutic and kindred professions are not as infrequent as one is led to believe from the literature, a questionnaire was sent to fourteen manufacturing pharmaceutic houses to determine the possible incidence of sensitization in this professional group. The questions were as follows:

1. Have any cases of asthma, coryza, lacrimation, spasmodic cough, eczema or urticaria come to your attention that could be attributed to the inhalation of, or contact with, ipecac, lycopodium or rhubarb?

2. Have any other drugs (synthetic or of plant origin) or animal extracts been known to cause any of the conditions or symptoms enumerated?

1. Peshkin, M. M.: Ipecac Sensitization and Bronchial Asthma, J. A. M. A. **75**: 1133 (Oct. 23) 1920.
2. Widal, F.; Abrami, P., and Joltrain, E.: Anaphylaxis to Ipecac, Presse méd. **30**: 341 (April 22) 1922.
3. Bernton, H. S.: Occupational Sensitization to the Castor Bean, Am. J. M. Sc. **165**: 196 (Feb.) 1923.

Answers were received from all. Four concerns reported workers suffering with asthma due to inhalation of ipecac and others suffering from urticaria due to contact with emetin solution. One of the largest manufacturers of pharmaceuticals wrote that:

> The physician in charge of our hospital advises that he has had yearly upwards of 100 calls for services where patients were suffering from bronchial asthma or other evidences of respiratory irritation from dust, chiefly resulting from grinding ipecac. Despite our efforts to confine dust in grinding ipecac, the particles would get in the air and affect susceptible individuals at considerable distances from the grinding room. We have finally been able to control the trouble from grinding ipecac, until we have now only a few patients who ever come in sufficiently close contact with the drug to experience any trouble.

Another firm said that one worker had been forced to leave the laboratory whenever ipecac preparations were being handled, on account of acute asthmatic attacks. A third house reported twelve cases of sensitization to emetin solution. These cases were characterized by urticaria of the forearms and hands, with intense itching.

No cases were reported of affection from exposure to powdered rhubarb or lycopodium.

Next to ipecac, the most common causes of asthma are poke root and podophyllin. One firm said:

> We have experienced some trouble with podophyllin and poke root in causing bronchial asthma, but these cases do not exceed probably half a dozen cases from each drug a year.

Three workers suffered from vanillism from handling vanilla beans, with symptoms similar to those noted in the cases in which there was sensitiveness to emetin. One worker showed sensitivity by inhalation to urease, which is derived from the jack or soy bean.

Two firms reported that several persons were transferred from the drug milling and grinding room, on account of sensitiveness to certain powdered drugs. The fact that quite a variety of drugs were handled made it impossible to trace, with any degree of exactness, the causes of asthma in these persons.

Powdered bile salts are somewhat irritating and the workers generally wear respirators, but no cases have occurred in which allergic symptoms were manifest.

Numerous skin irritations from a variety of synthetic chemicals were noted, but no instances of asthma have occurred in the workers following inhalation.

While all the concerns prepared various glandular extracts, four of these were almost entirely devoted to this field. It appears that the workers who handle the desiccated glandular extracts experience no inconvenience. They do not even wear respirators as a rule. However, one firm wrote that:

> Epinephrin crystals is the only animal extract noticed to cause any discomfort to our workers; it is very irritating to the mucous lining of the nostrils and the esophagus.

Another wrote that:

> In the manufacture of pancreatic products there is frequently observed an erosion of the mucous membrane of the nose and throat and of the epidermis of the finger tips. This is attributed to the presence of the active proteolytic ferment contained in the products. We have, of course, developed a means to meet this situation.

It is well known that in an asthmatic subject an attack may be induced purely by mechanical irritation. It is possible that some of these preparations, such as bile salts and epinephrin crystals, which our correspondents mention, may excite asthmatic attacks by

mechanical irritation, and these attacks should not be confused with cases of specific hypersensitiveness. These cases can be classified and differentiated by the skin tests. If this procedure was carried out in all such cases, greater progress could be made toward their classification and proper management.

A careful search of the literature covering a period of 100 years fails to show any case of bronchial asthma or hay-fever caused by powdered rhubarb or lycopodium. Therefore the following case reports will be of interest, since they demonstrate unusually rare types of protein hypersensitization in pharmacists.

REPORT OF CASES

CASE 1.—An unmarried man, aged 27, employed as a prescription pharmacist for the last nine years, the details of whose case report were kindly furnished me by Dr. S. P. Holland, Blakely, Ga., soon after he began handling drugs was seized at irregular intervals with typical symptoms simulating hay-fever. These symptoms occurred only when the patient was working in a drug store, and were relieved when he was off duty or unemployed. It was not until the summer of 1922 that the patient became definitely certain that the handling of powdered rhubarb, or exposure to it, was responsible for his perennial hay-fever, The past and family histories were irrelevant.

Physical examination was negative. Aug. 24, 1922, Dr. Holland performed protein skin tests against rhubarb. The skin reaction appeared within one and one-half minutes, presenting a wheal 18 mm. in diameter and surrounded by an intense erythema.

CASE 2.—I. T., a man, aged 26, a student at Fordham University School of Pharmacy and employed as an apprentice in a drug store since 1916, referred to me by Dr. Jacob Diner, New York, had enjoyed good health until the fall of 1918, when he was first entrusted with the preparation of certain pills in which lycopodium was used as a dusting powder. During the first handling of lycopodium, he was seized with violent sneezing, lacrimation and rhinorrhea, ending in an attack of asthma. These symptoms were not relieved until half an hour after he left the store. He recalled that during the two years prior to the actual handling of lycopodium he had frequent sneezing spasms of short duration while working about the store. Following a second but more severe attack of bronchial asthma, one month later, every effort was made to avoid exposure to lycopodium. However, soon after this he desired to convince himself that lycopodium was actually responsible for the bronchospasms, so on several occasions he intentionally exposed himself to the powder. Each exposure resulted in severe asthmatic seizures. Later on, the patient observed that even the handling of lycopodium by another person while he was in the same room always induced a bronchospasm, and that he thereby averaged about two dozen attacks yearly. In 1922, he matriculated in the school of pharmacy. After he had an attack of asthma in the laboratory, the use of lycopodium in the school was forbidden, and he remained free of all symptoms for one year. Oct. 22, 1923, lycopodium was again used in the laboratory. He was in the third section; two previous classes had employed lycopodium that day. On entering the laboratory, he was immediately seized with the most violent attack of asthma he had ever experienced. This bronchospasm was of two hours' duration. For the following three days he had mild recurrent bronchospasms, with respiratory oppression and wheezing during the intervals of attacks. In the last year, his tolerance for lycopodium had become so lowered that the mere entering of a room in which the powder was employed resulted in a very severe attack of asthma.

Recently, he had observed that the ingestion of mustard caused respiratory oppression and wheezing for several hours, and that exposure to a cat caused merely sneezing. A positive skin reaction to desiccated extract of pancreas revealed the fact that the handling of this drug caused sneezing. During the intervals of asthmatic attacks, the patient was entirely free of all symptoms. The past history was irrelevant, except that the patient's tonsils and adenoids were removed in 1914. A nasal operation was performed one and one-half years after the first bronchospasm, without affording the slightest relief. The family history was negative.

Physical examination was negative. The patient was of excellent physique. Skin tests were performed with many drugs in powder form; the reactions to desiccated gland extracts were negative, except lycopodium and the extract of pancreas, which gave positive reactions. The reaction to the lycopodium powdered protein presented a wheal of 12 mm. with an intense erythema of 4 cm. The patient reacted to a dilution of 1:100,000. The reaction to the desiccated extract of pancreas presented a wheal of 8 mm. with an intense erythema of 3 cm. He reacted to a dilution of 1:100. These drugs were not orally administered for the purpose of observing their effects because of the patient's unwillingness to submit to such a test.

Cutaneous tests against 116 food, bacterial, pollen, epidermal and dust proteins resulted in plus minus reactions to cat hair, mustard and banana.

CONCLUSION

1. Sensitization to drugs is more common than one is led to believe from the few reports in the literature.
2. Ipecac is the most common cause of bronchial asthma in pharmacists and pharmaceutical workers.
3. Next to ipecac, the commonest causes of bronchial asthma in pharmacists are podophyllin and pokeroot.
4. The handling of emetin solution and vanilla beans causes skin manifestations characterized by urticaria of the forearms and hands, with intense itching.
5. Synthetic drugs and desiccated animal gland extracts apparently play no rôle in the causation of bronchial asthma, except that by inhalation they may induce an asthmatic attack by mechanical irritation.
6. Rhubarb and lycopodium hypersensitiveness are unusual causes of allergic manifestations in pharmacists.
7. The occupations of pharmacist and pharmaceutical worker and their relation to bronchial asthma and other allergic manifestations due to drugs is an important one, it would appear, and deserves more attention.

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A FATAL CASE OF DIABETIC COMA WITHOUT KETOSIS

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R. C. N., a railroad fireman, aged 22, was brought to the House of Mercy Hospital with a story of having been well until three weeks before, when he had an attack of some acute infection, which was called grip and which lasted a few days. He did not feel well after this and was seen, February 15, by his family physician, who found sugar in his urine and discovered that he was drinking large amounts of water, passing large amounts of urine, and was eating hungrily.

February 19, he vomited several times during the night. This was repeated the following day, and February 21, when the vomiting persisted. Drowsiness and deep breathing also being noted, the patient was brought to the hospital.

The family and previous history were negative.

The patient was fairly well nourished; the temperature was 96.5 F.; pulse, 90; blood pressure, systolic, 42; diastolic, 0. The breathing was slow and deep, typical of air hunger. The patient was very drowsy, but could be roused, and answered questions. The right pupil was slightly larger than the left, and both reacted to light and in accommodation. The mouth was parched, the tongue very dry. The heart sounds were weak, with an occasional extrasystole. The lungs, abdomen and extremities were normal. No knee jerk could be obtained. A catheterized specimen of urine showed a specific gravity of 1.020; a good trace of albumin; sugar, ++++; no

acetone; no diacetic acid; a few hyaline casts; a few epithelial cells, and a few pus cells. The blood sugar was 1.04.

The patient was given orange juice and water by mouth in small amounts at frequent intervals and a small amount of 5 per cent. glucose by rectum. Twenty units of insulin was given intravenously at 7:10 p. m. and again at 8:10 p. m. The patient went into deeper coma, and died at 8:30 p. m., after having been in the hospital three hours.

The necropsy showed the brain normal except that the dura was adherent to the skull over both hemispheres. There was a small persistent thymus; the lungs and the heart were normal; in the aorta were well marked yellow patches of yellow atheroma. The liver showed a mild grade nutmeg change; the spleen was normal; the stomach was normal in size, and contained a considerable amount of black, watery fluid; the pancreas was normal in size and section. The intestines were normal. The kidneys showed a mild degree of subacute nephritis.

SUMMARY

In the diagnosis of this case the striking thing was a condition of diabetic coma with high blood sugar but no diacetic acid by the ferric chlorid test or acetone in the urine. Beta-oxybutyric acid was not looked for, and may have been present, although the absence of casts in any quantity, which are said to accompany the presence of any amounts of this acid in the urine, was rather against it.

It seemed possible to rule out the other causes of coma, and the diagnosis of diabetic coma appeared most probable.

It has been suggested that dehydration, together with the high blood sugar and sudden onset, may have been the deciding factor of death, or that it may have been due to an acid not yet known.

Rosenbloom [1] cites three fatal cases of diabetic coma with no trace of beta-oxybutyric acid, diacetic acid or acetone, with a normal amount of ammonia-nitrogen and no evidence of kidney disease, and suggests the presence of an unidentified acid.

McCaskey [2] reports a case of fatal diabetic coma with a blood sugar of 0.66 per cent. and acetone in the urine, but no diacetic or beta-oxybutyric acid, and feels that the coma may have been due to some unknown derivative of the acetone group.

Joslin [3] records a fatal case of diabetic coma with a blood sugar of 1.37 per cent. and no diacetic acid in the urine.

Bock, Field and Adair [4] have observed similar cases of diabetic coma that they suggest may be due to an unknown organic acid, not of the ketone group.

This case, in conjunction with the cases referred to, would seem to indicate that some types of diabetic coma might be due to an acid as yet not identified.

1. Rosenbloom, J.: A Form of Diabetic Coma, New York M. J. **52**: 294 (Aug.) 1915.
2. McCaskey, G. W.: A Case of Fatal Diabetic Coma Without Diacetic or Beta-Oxybutyric Acid, J. A. M. A. **66**: 350 (Jan. 29) 1916.
3. Joslin, E. P.: A Fatal Case of Diabetic Coma, in Joslin's Treatment of Diabetes Mellitus, Ed. 3, p. 173.
4. Bock, A. V.; Field, H., Jr., and Adair, G. S.: J. Metabol. Res., to be published.

Pulmonary Tuberculosis and Hilum Node Tuberculosis.—Pathologically, it is obvious that in considering enlarged lymph nodes which occur in the thorax we are dealing with no special disease. In all likelihood, tuberculosis is in the majority of cases responsible for their enlargement. But the nodes alone may be involved, either in an acute or subacute stage, or inflammation of neighboring structures may have been extended to them. After reviewing the subject, a question difficult to determine pathologically is where and when does hilum tuberculosis terminate and pulmonary tuberculosis begin?—J. A. Honeij: *Am. Rev. Tuberc.* **9**:10 (March) 1924.

TREATMENT OF INJURIES DURING THE ACUTE STAGE BY DIATHERMY

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The work reported in this paper was prompted by the desire to give greater relief to minor injuries not requiring hospitalization. The early cases consisted principally of sprained wrists and ankles. Previous to November, 1923, these ankles and wrists were treated about as follows: Roentgen ray examination ruled out fractures; rest was given to the part; immobilization by casts or splints was employed where pain persisted; the patients were given three 1 grain (0.065 gm.) tablets of powdered opium to be taken at night; codein sulphate, one-half grain (0.03 gm.) was given if the patient was still losing sleep after the second day. The patient was advised to apply ice bags for from twenty-four to forty-eight hours, after which soaking the foot or wrist in hot water was recommended. It was noticed that several patients disobeyed, and stated that greater relief was obtained during the first twenty-four to forty-eight hours if the part was placed in hot water, even though the swelling increased markedly. It was this observation that led me to determine what relief could be obtained by the penetrating heat produced by diathermy.

I have always been skeptical of the claims of salesmen for various types of physiotherapy apparatus, and therefore searched the literature for reports of cases. Very little has been written about the value of diathermy in treatment of injuries during the acute stage. Even such recent works as Massey and Sampson dismiss the subject with three or four lines, saying that diathermy is useful in treatment of sprains, but with nothing more convincing to back it up. With this skepticism, I decided that the giving of treatments and the report of results on subsequent days should not be turned over to different assistants, but that I should do all of it myself. For this reason, I shall have to be contented to report the results in 186 cases. An effort was made to take cases in which objective findings were present as well as confirmatory evidence of injury. Doubtful cases of injury were not treated by diathermy, and the rule of "No neuros nor malingerers admitted" was rigidly enforced. Over 90 per cent. of these cases had undisputed objective findings of injury, either of fracture, hemorrhagic extravasation, laceration, discoloration or muscle fixation.

Most of these patients are employees of the American Railway Express Company in Chicago, and were given treatment soon after the injury, preferably on the second or third day. The two cuff, cuff and electrolyte, or two plate methods of application were used, depending on the location of the injury. Periods of treatment were from fifteen to twenty minutes, and the maximum tolerance of milliamperage given and adjusted during the treatment as necessary. The average milliamperage tolerance was about as follows: fingers and toes, from 150 to 300; ankles and wrists, from 500 to 750; knees and elbows, from 800 to 1,200; shoulders and thighs, from 1,200 to 1,500; backs, from 1,800 to 2,400.

Only two patients received burns, one a small burn of the first degree and the other a 1 by 2 inch third degree burn on the chest. It was observed that the pain was markedly exaggerated during the treatment, and patients who were unable to locate a specific point of pain previous to the treatment were able to localize it

exactly during the treatment. The best results were obtained when the method of application was such that the exact point of pain received the maximum amount of heat. To do this, it was sometimes necessary to give a second treatment; but in the majority of cases only one was given. All cases treated by diathermy from November, 1923, to May, 1924, are included in this series. None have been discarded as atypical. There are 186 cases in all, divided as in Table 1.

TABLE 1.—*Distribution of Cases*

Contusions and abrasions		60
Sprains:		
Ankle	19	
Wrist	14	
Knee	9	
Shoulder	7	
Fingers	7	
Elbow	1	
Muscles over iliac crest	1	
		58
Bursitis and myositis		19
Tenosynovitis		2
Sprained backs		16
Slow healing infections:		
Lacerations	4	
Cellulitis	9	
		13
Acute articular rheumatism		2
Fractures, mostly simple		15
Dislocation		1
Total		186

The method of obtaining for record the degree of improvement was difficult to plan. Many patients would state that they were very much improved. The percentages of improvement and relief from pain were obtained by asking the patient the following question: "Considering the pain and discomfort you had just prior to the treatment as 100 per cent., what percentage remains today?" Many reply one half or one fourth or one tenth, and these are expressed in percentages. Reports were obtained directly on succeeding days to determine the approximate rate of improvement.

Those in which the percentages were less than 3 per cent. were considered as practically none, and when this stage was reached, they were soon released for work. When they were released they were told that if they had recurrences of pain or further trouble, they should report to me. Less than ten patients reported recurrences of pain, and, in those, not adequate to keep them from work. The tabulated percentage of improvement and relief of pain are noted in Table 2.

TABLE 2.—*Improvement and Relief of Pain in One Hundred and Eighty-Six Patients*

Days After Diathermy	No Pain Remains Total Relief	90% Relief	75% Relief	66⅔% Relief	50% Relief	40% Relief	25% Relief	10% Relief	No Relief
1st	13	14	29	6	49	6	10	5	9
2d	13	16	23	3	26	2	5	..	2
3d	20	14	9	3	7	1	..	..	1
4th	15	10	13	..	1	..	..	..	..
5th	8	9	6	..	2	..	..	..	..
6th	2	3	..	..	..	..	..	..	..
7th	9	5	..	..	..	..	..	..	..

Cases Not Materially Affected by Treatment: 12

Temporary Ten Days' to Two Weeks' Relief of Pain: 7

There were twelve cases in which diathermy seemed not materially to have affected the result. Three were injuries of calf of the leg, four contusions of bony prominences with periostitis, two tenosynovitis, two alcoholism, and one in which I made the mistake of expecting improvement when the patient's case had been taken up by the industrial board.

Two patients were worse on the day following the treatment; the first was a case of bursitis of the shoulder and the second an injured great toe in which the swelling and tenderness of an early paronychia was mistaken for simple contusion. Diathermy is contraindicated in infected cases in which adequate drainage has not been established.

In seven cases in which recovery was expected to be gradual, diathermy was used to reduce pain. The case that best illustrates the use of diathermy in this group is as follows:

G. S., a man, had had a subacromial or subdeltoid bursitis, and first came under my observation, Oct. 1, 1923. At that time there was fixation or pseudo-orthosis between the right humerus and the scapula. Even with elevation of the scapula, he was not able to elevate the arm to the level of the shoulder. Fortunately, this patient came under observation early enough so that he was sent to the hospital, and, under gas anesthesia, the adhesions were broken. These were heard as well as felt because it sounded like tearing cloth. The arm was immobilized in an elevated position for four weeks by means of a cast, and he was allowed to go home walking "like the statue of Liberty." The top of the cast was removed, and three weeks later the entire cast removed. The pain in starting motion in this arm was the source of greatest annoyance, and the patient would walk the floor at night on account of the pain. Large doses of bromids as well as barbital, acephenetidin and opiates gave only temporary relief.

Nov. 28, 1923, and again two days later, I gave the patient treatment by diathermy. December 1, he stated that he had had the first night's good rest in over two weeks, and estimated that about 15 per cent. of the pain remained. After nearly ten days, the pain recurred, but he returned to work, December 11, and called at the office about once in two weeks for diathermy, which gave marked relief. The patient used the arm extensively, and the atrophic muscles regained their natural robustness, and when I saw him recently, he had full range of motion of the arm, and measurements revealed no difference in circumference between the right and left arm at same levels. Inspection revealed no difference in muscular development in motion of either shoulder.

I do not wish to give the impression that diathermy alone was responsible for the end-result in this case, because I feel that the active use of the affected arm and the restoration to normal was accomplished by the patient using his arm. But I know that he was not using that arm as he should have after it was taken from the cast, because he was having too much pain; and that, after diathermy, I could give him ten times more active and passive muscle exercise than before.

In these cases, then, diathermy is a most valuable analgesic during the period of restoring muscles to their normal state after periods of immobilization that result in atrophy and stiffening of joints. The same restoration can be obtained without diathermy, but it can be obtained in less than half the time with diathermy. The analgesic effect of diathermy seems to last from ten to fourteen days, and in the fifteen fractures treated in this series, relief was so marked during the first two weeks that I am led to believe that it will come into general use for the relief of pain during the first, second and third days following fractures; that is, during the period we usually apply ice bags and wait for the swelling to subside so that an adequate snug fitting cast may be applied. It is far more desirable than opiates and sedatives, and is used to supplement the present methods of reduction, retention and restoration in the treatment of fractures.

I should like to say a word of caution against the use of diathermy for every case or every ailment. It is not a cure-all, and correct diagnosis is a most essential prerequisite to good results with diathermy. Sprained wrists frequently reveal fracture of the scaphoid or

dislocated semilunars, and diathermy can be expected to relieve pain only temporarily in such cases, and only when reduction and accepted methods of treatment are used in conjunction with diathermy.

It has been interesting to observe the shortening of the period of temporary total disability in this series of cases. Many of the patients returned to work in 50 per cent. of the estimated temporary total disability period, and nearly all in less than 75 per cent. the estimated time.

These results have been obtained in cases of injuries in which compensation is being paid. In quite a few of the cases, men were working as extra help receiving cash at the end of each day. With this type of individual in a large city, compensation nearly satisfies their wants, and the desire to get well is lacking. I only wish to point out that these results are obtained under a handicap, and better results should be obtained when patients pay for their own treatment and stand their own losses for time off.

SUMMARY

By the use of diathermy in the treatment of 186 cases it has been found that:

1. It is a valuable analgesic during the acute stage of injuries.
2. By its use, the pain was reduced more than 50 per cent. in all cases during the first twenty-four hours, and 174 patients were more than 90 per cent. relieved of pain in less than one week's time.
3. Twelve cases were not noticeably affected.
4. In seven cases, the rate of restoration of atrophied muscles and stiffened joints was markedly hastened.
5. In fifteen cases of simple fractures, diathermy was a most valuable analgesic during the acute painful stage.
6. These results have been obtained under difficult circumstances, in that the patients were receiving compensation, and hence their personal desire to get well was not always present.

CLINICAL CONDITIONS OF ALKALOSIS *

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Alkalosis is the term that has been employed to cover those conditions which are associated with a shifting of the acid-base balance of the blood from the normal definitely to the alkaline side. Although this term has been used for several years, and a number of papers have appeared describing conditions in which an alkalosis no doubt existed, the data, with a very few exceptions, have been inconclusive for the reason that the p_H of the blood was not ascertained. Our observations lead us to believe that alkalosis is a condition that is much more common than has ordinarily been supposed and has often been overlooked by the clinician.

In health, the blood is uniformly maintained at a constant slightly alkaline reaction (p_H of about 7.4) through the influence of the bicarbonate, the phosphate and the proteins of the blood. The chlorid shift, whereby the chlorin ion may pass through the cell membrane leaving the sodium ion in the plasma to serve as base, is likewise a factor of importance. The bicarbonate, however, plays the chief rôle in regulating the reaction of the blood, since it is able to furnish approximately three times as much alkali as all other buffers combined. Furthermore, the latter exert their influence in large measure through the medium of the bicarbonate.

In 1917, Van Slyke and Cullen [1] described a simple method of measuring the so-called alkali reserve of the body by estimating the plasma bicarbonate. This method quickly found extensive clinical application, chiefly in conditions of acidosis. Van Slyke and Cullen recognized at the time that the plasma bicarbonate would serve as an adequate index of acidosis or alkalosis only as long as these conditions remained compensated, i. e., the hydrogen-ion concentration remained normal; but it was believed then that the hydrogen-ion concentration was a physiologic constant and did not change appreciably until shortly before death. Subsequent studies by a number of different investigators showed, however, that uncompensated conditions do occur, not only in disease but also in normal persons as a result of altered pulmonary ventilation or exercise.

The studies of Hasselbalch, L. J. Henderson, Yandell Henderson, Van Slyke and their co-workers, in particular, have done much to clarify our conception of the acid-base balance. Through their work, it has come to be recognized that there is a definite relation among three interdependent variables, sodium bicarbonate, carbonic acid and p_H, the determination of any two permitting the calculation of the third. Stated in another way, the p_H is a function of the ratio between the sodium bicarbonate and the carbonic acid. Anything that will raise the sodium bicarbonate or lower the carbonic acid will raise the p_H, and, conversely, anything that will lower the sodium bicarbonate or raise the carbonic acid will lower the p_H. VanSlyke [2] was the first to correlate clearly the factors involved in variations in the acid-base balance. He pointed out that there are nine theoretically possible variations depending on the fact that the blood bicarbonate may be high, normal or low, and in each of these conditions the p_H may be high, normal or low. Conditions with an abnormal blood bicarbonate and a normal p_H are termed compensated alkalosis or acidosis, but compensated in those conditions in which the p_H is abnormal.

The acid-base balance may be most easily ascertained by estimating the p_H and carbon dioxid content of the same sample of blood plasma. For the carbon dioxid determination, the gasometric method of Van Slyke [3] is available, while Cullen [4] has described an accurate colorimetric method of measuring the p_H. Myers, Schmitz and Booher [5] have simplified the technic of the latter method and increased its delicacy.

The carbon dioxid content of the venous blood plasma of the normal human adult at rest varies between 55 and 65 per cent. by volume. The recent studies of Myers and Booher [6] indicate that the p_H of such persons falls

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between 7.35 and 7.43, and that p_H values below 7.32 and above 7.47 are definitely abnormal.

Clinical conditions that may lead to alkalosis can be thus enumerated: (1) administration of sodium bicarbonate; (2) pyloric obstruction; (3) fever, and (4) deep roentgen-ray therapy. It is now generally recognized that severe alkalosis may be accompanied by tetany, although the etiologic relation of alkalosis to tetany is a much controverted question at present.

In 1912, Sellards [7] and, in 1913, Palmer and Henderson [8] suggested the use of the alkali tolerance test as a measure of acidosis. This test soon came into quite general clinical use, and it had the advantage that it combined a diagnostic with a therapeutic procedure. In 1917, Palmer and Van Slyke [9] considered the question of alkali retention from the standpoint of the blood bicarbonate, and wrote: "Our results show that in pathologic conditions there is danger of giving unnecessary and perhaps injurious amounts of bicarbonate if administration is continued until the urine turns alkaline. This fact may explain the disapproval under which the perfectly rational alkali therapy has fallen with some clinicians." That Sellards [7] appreciated this point is evident from the following statement made in his original paper: "I am inclined to think that one of the most important factors to determine is whether changes do occur in the kidney which render it incapable of excreting anything but an acid urine after the introduction of an excess of bicarbonate into the body."

Recently, toxic manifestations following the administration of sodium bicarbonate have been noted by a number of investigators. Tetany was observed following the intravenous administration of sodium bicarbonate to three children suffering from diarrheal acidosis by Howland and Marriott,[10] and likewise by Harrop [11] in an adult with anuria. Grant [12] has reported two cases of tetany due to overdosage with sodium bicarbonate, while Hardt and Rivers [13] have noted that patients with duodenal ulcer, treated by the Sippy method, may develop definite symptoms of toxemia associated with renal changes. None of the foregoing workers determined the p_H, but the carbon dioxid combining power of the blood was found high where estimated. Binger, Hastings and Neill [14] have recently reported observations in a case in which the p_H was raised to 7.55 after bicarbonate administration. They say, "The case is reported to show that definite untoward results may follow the administration of sodium bicarbonate, and to point out the character of certain of these untoward results."

That pyloric obstruction may result in alkalosis (and tetany) owing to the loss of hydrochloric acid by vomiting was shown experimentally in dogs by McCann [15] and by MacCallum.[16] It has likewise been observed in the human subject by Grant,[12] and more recently by Brown, Eusterman, Hartman and Rowntree,[17] Youmans and Greene,[18] and McVicar.[19] These workers have all observed an increased blood bicarbonate, but the p_H was not ascertained.

As first pointed out by Collip and Backus [20] and by Grant and Goldman,[21] voluntary overventilation may result in alkalosis (and tetany), owing to the increased excretion of carbon dioxid, thus disturbing the $NaHCO_3 : H_2CO_3$ ratio. Koehler [22] has recently recognized the presence of a similar condition in acute clinical fevers. He has reported observations on the p_H and carbon dioxid in fifteen cases of fever, the p_H reaching 7.60 in one case with a carbon dioxid of 47. When the fever was sufficiently high, the alkalosis was found to result in distressing symptoms.

Hussey [23] has observed a condition of uncompensated alkali excess in rabbits following roentgen-ray exposure, while Myers and Booher [6] have apparently encountered a similar condition in a human subject.

Conditions of alkalosis have been overlooked in the past for the reason that the clinical symptoms are not readily recognized or easily defined. Symptoms that may be noted, however, are headache, lassitude, nausea, vomiting, fever and, in some severe cases, tetany. Not infrequently, alkalosis appears to have been mistaken for acidosis, leading to alkali therapy, which aggravated the condition.

Therapeutic procedures that one might naturally think of employing in alkalosis are administration of acid phosphate or hydrochloric acid and bloodletting; but the efficacy of these agents cannot be compared with that of sodium bicarbonate in the treatment of acidosis. When once developed, alkalosis is very difficult to alleviate.

The accompanying table presents data on twenty cases of uncompensated alkalosis, the alkalosis being due to alkali excess in all except the last few cases, in which it was due to carbon dioxid deficit as an indirect result of fever. The p_H estimations furnish definite proof of the alkalosis in all these cases, but the cause of the alkalosis in the individual cases cannot always be given for the reason that alkalosis may be accompanied by vomiting and fever, which in themselves lead to alkalosis.

The direct cause of the alkalosis in the first ten cases tabulated was sodium bicarbonate administration. Four of these were patients with ulcer undergoing Sippy treatment; one was a case of diabetes; two were cases of nephritis; two patients received alkali after cholecystectomy, and one after oophorectomy. The alkalosis in Patients 11 to 16 was apparently due to loss of hydrochloric acid from vomiting, while in Patient 17 it was probably dependent on the roentgen-ray therapy. In the

7. Sellards, A. W.: The Determination of the Equilibrium in the Human Body Between Acids and Bases, with Special Reference to Acidosis and Nephropathies, Bull. Johns Hopkins Hosp. **23**: 289, 1912.
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9. Palmer, W. W., and Van Slyke, D. D.: Studies of Acidosis, IX, Relationship Between Alkali Retention and Alkali Reserve in Normal and Pathological Individuals, J. Biol. Chem. **32**: 499 (Dec.) 1917.
10. Howland, John; and Marriott, W. M.: Observations upon the Calcium Content in the Blood in Infantile Tetany and upon the Effect of Treatment by Calcium, Quart. J. Med. **11**: 289 (July) 1918.
11. Harrop, G. A., Jr.: The Production of Tetany by the Intravenous Infusion of Sodium Bicarbonate, Bull. Johns Hopkins Hosp. **30**: 62 (March) 1919.
12. Grant, S. B.: Tetany: A Report of Cases with Acid-Base Disturbance, Arch. Int. Med. **30**: 355 (Sept.) 1922.
13. Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.
14. Binger, C. A. L.; Hastings, A. B., and Neill, J. M.: Edema Associated with Moderate Bicarbonate Administration During Convalescence from Pneumonia, Arch. Int. Med. **31**: 145 (Jan.) 1923.
15. McCann, W. S.: Carbon Dioxide Combining Power of the Blood Plasma in Experimental Tetany, J. Biol. Chem. **35**: 553 (Sept.) 1918.
16. MacCallum, W. G.; Lintz, J.; Vermilye, H. N.; Leggett, T. H., and Boas, E.: The Effect of Pyloric Obstruction in Relation to Gastric Tetany, Bull. Johns Hopkins Hosp. **31**: 1 (Jan.) 1920.
17. Brown, G. E.; Eusterman, G. B.; Hartman, H. R., and Rowntree, L. G.: Toxic Nephritis in Pyloric and Duodenal Obstruction: Renal Insufficiency Complicating Gastric Tetany, Arch. Int. Med. **32**: 425 (Sept.) 1923.
18. Youmans, J. B., and Greene, I. W.: Clinical Alkalosis in Gastric Disease, J. Michigan State M. S. **23**: 160 (April) 1924.
19. McVicar, C. S.: A Discussion of the Clinical and Laboratory Findings in Certain Cases of Obstruction in the Upper Gastro-Intestinal Tract, Proc. Am. Gastro-Enterol. A., May, 1924.
20. Collip, J. B., and Backus, P. L.: The Effect of Prolonged Hyperpnea on the Carbon Dioxide Combining Power of the Plasma, the Carbon Dioxide Tension of Alveolar Air and the Excretion of Acid and Basic Phosphate and Ammonia by the Kidney, Am. J. Physiol. **51**: 568 (April) 1920.
21. Grant, S. B., and Goldman, A.: A Study of Forced Respiration: Experimental Production of Tetany, Am. J. Physiol. **52**: 209 (June) 1920.
22. Koehler, A. E.: Acid-Base Equilibrium, I, Clinical Studies in Alkalosis, Arch. Int. Med. **31**: 590 (April) 1923.
23. Hussey, R. G.: The Influence of X-Rays on the Properties of Blood, J. Gen. Physiol. **4**: 511 (May) 1922.

last three patients (18 to 20) the fever played a prominent rôle, although in Patient 19 disturbed liver function may have been the important factor.

From an inspection of the table it will be noted that Patients 1 and 3, undergoing Sippy treatment, at first showed a compensated alkalosis (high bicarbonate but normal p_H) which later became uncompensated. With discontinuation of the alkali, the p_H first returned to normal in Patient 3, but in Patient 4 the p_H remained high after the return of the bicarbonate to normal. In Patients 6 and 7, who both had nephritis, the carbon dioxid content never exceeded the normal limits with the exception of the last day in Patient 7. Nevertheless, the administration of alkali raised the p_H to 7.53 and 7.51, respectively. Such findings indicate that data on both the p_H and the bicarbonate are necessary to secure an adequate index of the acid-base balance.

There is evidence to show that, in certain cases, alkalosis is readily produced by bicarbonate administration for the reason that the kidneys do not readily eliminate alkali. It may be noted that only small amounts of alkali were administered to Patients 5, 6 and 7, while in Patients 7 and 10 the reaction of the urine remained strongly acid (p_H 5.2 and 5.12, respectively) despite the alkalosis. This is a topic we plan to enlarge on in a later paper.

The term acidosis was originally coined to apply to the ketosis occurring chiefly in diabetes, and ketonuria was at one time thought essential to a diagnosis of acidosis. Although ketosis generally leads to acidosis, it is not necessarily incompatible with alkalosis, as is evident from the findings in Case 5. The patient, who had diabetes with a blood sugar of 0.288 per cent., and ketonuria, showed the highest p_H (7.60) we have encountered. Cyclic vomiting has likewise been looked on as a condition of acidosis due to the ketonuria. Vomiting with loss of hydrochloric acid leads to alkalosis, unless the kidneys are able to compensate by eliminating a corresponding amount of base. The p_H in Patient 11, suffering from cyclic vomiting, was 7.52. It is interesting to note that the reaction of the urine remained acid.

It will be observed that somewhat higher figures for the bicarbonate have been obtained in Patients 12 to 16, in whom the alkalosis was due to pyloric obstruction, than in Patients 1 to 10, receiving alkali. If sufficient alkali is administered to patients that do not readily excrete alkali, however, equally high figures for the blood bicarbonate may be obtained. We have observations [24] on a number of such cases, although the p_H was not determined at that time.

The relation of alkalosis to tetany is a much controverted question at present. While the frequent occurrence of tetany in conditions of alkalosis seems beyond dispute, the evidence that the tetany is a direct result of the alkalosis appears inconclusive. Although a number of our cases showed more or less pronounced symptoms of tetany, we do not feel that we are in a position to express an opinion on this subject at present. We might mention, however, that Patient 15, who appears to

Cases of Uncompensated Alkalosis

Case No.	Age	Sex*	Date	p_H	Carbon Dioxid, C.c. to 100: Content†	Capacity	Diagnosis and Comment
1. J. B.	45	♂	7/ 3/23	7.40	75	..	Gastric ulcer; Sippy treatment begun July 1
			7/26/23	7.49	66	..	
			7/29/23	7.50	..	68	
2. F. G.	38	♂	2/23/24	7.46	66	..	Gastric ulcer; Sippy treatment
			3/12/24	7.46	65	..	
3. B. N.	21	♂	2/28/24	7.41	80	..	Gastric ulcer; Sippy treatment
			3/ 3/24	7.47	83	..	
			3/ 7/24	7.40	67	..	
4. M. S.	61	♂	10/29/23	7.58	70	70	Duodenal ulcer; Sippy treatment; alkali discontinued October 31
			10/31/23	7.58	70	..	
			11/ 2/23	7.52	56	59	
5. L. C.	62	♀	12/ 5/23	7.60	75	76	Diabetes; alkali given before admission; marked edema; ketonuria; died
6. M. L.	65	♂	12/17/23	7.50	63	..	Chronic interstitial nephritis; sodium bicarbonate given but discontinued December 18; frequent vomiting; at one time patient showed tetanic movements, and twitching of muscles of face and arm
			12/21/23	7.41	56	..	
7. M. J.	38	♀	2/26/24	7.50	63	..	Cardiorenal disease (acute nephritis); anemia; received small amounts of sodium bicarbonate during whole period of observation; some fever; twitching of fingers; urine more acid than p_H 5.2, February 28; died, March 8
			2/27/24	7.51	61	..	
			2/28/24	7.48	52	..	
			2/29/24	7.49	58	..	
			3/ 1/24	7.48	55	..	
			3/ 6/24	7.49	69	..	
8. N. W.	52	♀	4/ 9/23	....	..	98	Cholecystectomy, April 6; received 40 gm. of sodium bicarbonate; first carbon dioxid 6 hours before second estimation, April 9; temperature, 100.4 F.; frequent vomiting
			4/ 9/23	7.52	83	87	
			4/10/23	7.45	79	79	
9. F. H.	41	♀	5/ 3/23	7.49	76	..	Cholecystectomy, April 23; received sodium bicarbonate by rectum; temperature, 102.4 F.; intestinal obstruction; frequent vomiting
10. A. W.	48	♀	4/12/24	7.55	62	..	Bilateral ovarian abscesses; operation, April 7; continued sodium bicarbonate therapy, April 9 to April 12; continued vomiting; temperature, 101 F. and p_H of urine, 5.12, April 12; died April 13
11. M. L.	12	♀	12/ 6/23	7.52	67	..	Cyclic vomiting; diagnosis, acidosis on admission; received one dose of sodium bicarbonate; blood chlorids, 0.458 per cent.; continued persistent vomiting; urine acid
			12/17/23	7.52	70	..	
12. A. C.	56	♀	1/17/24	7.58	..	84	Duodenal ulcer with pyloric stenosis; vomiting; gastro-enterostomy; temperature, 104 F., January 16
13. M. K.	35	♂	1/24/24	7.54	88	88	Intestinal obstruction; excessive vomiting; subnormal temperature
14. F. J.	53	♂	1/22/24	7.54	..	83	Carcinoma of stomach; vomiting, postoperative
			1/26/24	7.47	58	..	
15. W. C.	31	♂	3/ 3/24	7.48	98	..	Pyloric obstruction; vomiting; blood chlorids, 0.263 per cent.; tetany
16. M. L.	43	♂	3/ 7/24	7.52	..	91	Duodenal ulcer; vomiting; blood chlorids, 0.406 per cent.; calcium chlorid intravenously, March 8
			3/ 7/24	7.52	87	..	
			3/ 9/24	7.51	70	..	
17. B. W.	52	♀	11/21/23	7.56	..	..	Carcinoma of stomach; roentgen-ray therapy; some alkali; vomiting
			11/22/23	7.57	62	68	
18. C. H.	20	♂	1/31/24	7.48	52	..	Hodgkin's disease; radium therapy; temperature, 100 F.
19. D. M.	37	♂	1/12/24	7.56	67	..	Postoperative hepatic abscess; temperature, 102 F.
20. S. L.	57	♀	11/26/24	7.51	61	66	Diabetes with gangrene; temperature, 102 F.
			12/ 6/24	7.47	57	..	Temperature, 100.8 F.

* In this column, ♂ indicates male; ♀, female.
† Calculated on the basis of the bicarbonate.

24. Myers, V. C.: Practical Chemical Analysis of Blood, St. Louis, 1924, p. 110.

have had a fairly typical case of gastric tetany, showed the highest blood bicarbonate we have observed, 98, but a p_H only moderately elevated, 7.48.

CONCLUSIONS

Alkalosis is a much more common clinical condition than has ordinarily been supposed. Since the clinical signs of alkalosis are not sufficiently definite to permit a reliable diagnosis, the use of laboratory methods is necessary. For this purpose the blood bicarbonate alone is generally inadequate, thus necessitating the estimation of the p_H. Both of these determinations are needed to secure a reliable index of the acid-base balance.

In the past, sufficient caution has not always been employed in the therapeutic use of sodium bicarbonate. With impaired ability to excrete alkali, relatively small amounts of sodium bicarbonate will lead to alkalosis.

Ketonuria is not an infallible sign of acidosis, since it may exist in the presence of an alkalosis.

Clinical Notes, Suggestions, and New Instruments

A CASE OF MYCOTIC ANEURYSM OF THE GLUTEAL ARTERY *

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History.—H. B., a white woman, aged 24, a worker in a box factory, was admitted to the hospital, Sept. 13, 1923, because of pain in the right leg. It began suddenly, September 7, in the right gluteal region and upper portion of the right thigh. The pain was constant, but not severe in the beginning. It slowly descended the leg, and by September 10, was present throughout the entire right leg, from the region of the greater trochanter to the foot; in a general way, it followed the course of the great sciatic nerve. The pain on admission was severe enough to prevent the patient from resting or sleeping, and she was kept comfortable only by the aid of analgesics. The appetite was very poor. The bowels were somewhat sluggish. There were no other symptoms of note.

The patient's father died of tuberculosis. The family history was otherwise of no importance.

The patient had never been in robust health, and she had been in particularly poor health during the nine or ten months prior to admission. She ran the complete gauntlet of infectious diseases of childhood, having had varicella, scarlet fever, in infancy, measles at 10 and mumps at 11. She had pneumonia twice before the age of 7. Since childhood she had known that she had heart disease, and for many years had suffered attacks of precordial oppression, shortness of breath, on even slight exertion, and occasional puffiness of the feet and ankles. She had had a chronic cough during the winter months for several years. In January, 1923, she was ill eight weeks, her condition being diagnosed influenza. Two months later, she suffered from rheumatic fever and spent six weeks in bed. Swelling of the feet and ankles accompanied the rheumatic fever, the edema not subsiding until June. Symptoms of pleurisy appeared in May and again in August, persisting one week on each occasion. In June she developed an acute abdominal condition, and an appendectomy and cholecystectomy were performed. There was drainage from a right rectus incision until a week before admisison to the hospital. Since March, 1923, she had noticed the sudden appearance of small, red blotches, the size of a pin-head or slightly larger, on the finger tips and the palms of her hands, and occasionally over the upper arms and forearms. They were very painful on pressure and appeared at intervals of from two days to three weeks.

Physical Examination.—The patient was poorly nourished, considerably underweight, and lay in bed in considerable discomfort. There was no cyanosis, and there were no petechiae. Palpable nodes, pea-sized, were noted in both epitrochlear regions. Over the right gluteal region there was a smooth rounded mass, 8 cm. in diameter and about 1 cm. at its greatest depth, showing expansile pulsations synchronous with the heart beats. It was not tender, but considerable tenderness was elicited just below it. It was semielastic in consistency, and a systolic bruit could be heard over it.

The heart was enlarged to percussion as follows: Relative cardiac dulness was 12 cm. to the left and 3.5 cm. to the right of the midline in the fifth interspace. The point of maximal intensity was diffuse, 10.5 cm. to the left of the midsternal line in the fifth interspace. A systolic thrill was palpable over the apex, and in the same region could be heard a long, rough, systolic murmur, which almost replaced the first heart sound. The second sound was sudden and sharp. No diastolic murmur was present; the second pulmonic sound was louder than the second aortic; the pulse rate was 120; the systolic blood pressure, 125; diastolic, 80. The examination otherwise was unimportant.

On admission, there was a leukopenia, the white blood corpuscles being 4,700. There was also a moderate anemia, the red blood corpuscles being 3,900,000. The hemoglobin was 65 per cent. The differential formula was normal. September 17, the white blood count was 4,800. The leukopenia continued for a week after admission, when the white blood count began to increase. September 27, it was 7,250; October 1, 11,900; October 3, 10,500. There was also an increase in the red blood corpuscles, the count, September 27, being 4,192,000. There was no material change in the differential formula.

Urine examination at various times was negative.

Blood culture, September 20, showed streptococci in long chains growing at a reduced oxygen tension.

The Widal reaction, September 27, was negative. The laboratory examination was otherwise negative.

Course.—The patient was kept comfortable by the administration of one-half grain (0.03 gm.) doses of codein for the intense pain. She also received potassium iodid, 10 grains (0.65 gm.) three times a day, and mercuric salicylate, one-third grain (0.02 gm.), twice weekly, because it was thought at first that the aneurysm was syphilitic in origin. Later the mass was aspirated with a small needle and pure blood was withdrawn; a culture showed *Streptococcus viridans.* It was noted steadily after this that the pulsation in the mass became feebler and that the expansile nature disappeared. October 4, four weeks after admittance, little pulsation remained in the mass, and the bruit could be heard only with difficulty.

The patient died two months after admission.

Necropsy Findings.—The body was underdeveloped and emaciated. Rigor mortis was not present. Postmortem lividity was present, especially over the back and extremities. There were scattered over the abdomen and chest petechial hemorrhages, and there were bilateral epitrochlear nodes palpable. Over the right gluteal region there was a smooth, rounded, elevated mass, which was firm to pressure. There was an old laparotomy scar in the right lower quadrant, perfectly healed. The usual median incision had been made. There was a small amount of straw colored fluid in the abdominal cavity. The liver extended 5 cm. below the costal margin on the right side, and 8 cm. below the ensiform cartilage in the median line. The spleen was 5 cm. below the costal margin. There were dense adhesions binding the right lung securely at the base of the thorax. The left lung was free, but the pleura was markedly thickened, as was also the right pleura. The pericardium was greatly thickened and adherent to the myocardium. The heart was greatly enlarged. The pericardial cavity contained a large quantity of straw colored, turbid fluid. The myocardium appeared strikingly pale, and there was a small amount of epicardial fat. The coronary arteries were normal. The heart chambers were dilated, especially on the left side. The walls

* From the West Medical Service, Cincinnati General Hospital.
* Read before the Academy of Medicine, Cincinnati, March 24, 1924.

were definitely thickened. Along the wall of the left auricle there were a large number of densely packed, warty vegetations firmly adherent to the endocardium. Scattered over the walls of the right auricle were a few similar growths. Along the edges of the mitral valves and along their auricular attachment, the warty growths were especially pronounced and were apparently both old and recent. A few growths were observed along the chordae tendineae. Along the line of closure of the aortic valve there were accumulations of similar vegetations. The tricuspid and pulmonary valves showed no changes. The aorta was smooth and elastic.

The right lung was removed with difficulty, owing to dense adhesions. The pleura was irregularly thickened. At the right apex there was evidence of an old healed tuberculous lesion. The left lung showed no pleural thickening. There were a few inordinately enlarged glands at the hilum.

The liver was greatly enlarged; the surface was pale, and the cut section showed the changes due to chronic passive congestion. There was also a moderate amount of fatty infiltration. The spleen was about twice its normal size, and was greatly congested. A band of brownish yellow tissue divided the upper third from the lower two thirds. Further examination showed that this was an old infarct undergoing caseous degeneration. The general markings of the spleen could not be clearly made out, the trabeculae and malpighian corpuscles being obscured by the congested pulp substance.

The kidneys were apparently normal in size. The capsules stripped with little difficulty, revealing congested capsular surfaces. There were scattered infarcts here and there over the surfaces of various size. The cut section revealed multiple infarcts undergoing caseous degeneration.

In examination of the mass over the gluteal region, on the slightest pressure the knife entered a sac, which was filled with a dense clot about the size of a large orange. The center was well organized, and recent accumulations were noted over the outer surface. The clot filled the sac, apparently an aneurysm of the gluteal artery. It was resting on the sciatic nerve at one point.

Microscopic examination of the aneurysmal sac by Dr. N. C. Foot, revealed an inner layer of degenerated vessel wall, often almost destroyed. Outside this was an inflamed adventitial stratum, which was edematous and invaded by leukocytes of every description. Its vessels were inflamed, their walls thickened and cellular, and often one found emboli and thrombi in their lumina. Outside this was a mass of inflamed and degenerated skeletal muscle which showed areas of lymphocytic inflammation. There were empty spaces near the adventitia which contained a few giant cells, as though some foreign material had occupied them. Many of the endothelial cells that invaded the inflamed adventitia, and the muscle, were deeply pigmented with a golden yellow, granular material, hemosiderin. Among the muscle fibers were large rounded masses of what appeared to be degenerated collagen fibers, which, however, may have been much degenerated muscle strands. The heart muscle showed characteristic changes indicative of acute and subacute myocarditis. There was marked edema of the myocardia.

The valve substance was largely converted into granulation tissue. The endocardium on one side of the valve cusp was thickened and proliferating. The other side of the cusp was continuous with a large mass of "coral bodies," overlaid by ordinary clot. Here the endocardium was completely destroyed and the valve substance invaded by leukocytes.

The spleen and kidney showed the effects of numerous recent and old infarcts, some of them undergoing necrosis.

COMMENT

It is of interest to note that the patient had complained of symptoms of emboli occurring at the finger tips during the course of her disease before we saw her. During the course of her stay at the hospital, she was found to have septicemia.

On culture, the blood showed a pure growth of *Streptococcus viridans*. In addition to this finding there were signs of progressive septic endocarditis. Coincident with this, a mass developed in the region of the gluteal artery, causing excruciating pain along the sciatic nerve. This mass showed expansile pulsation and fluctuation, a systolic murmur on auscultation, and on aspiration was found to contain pure blood. Culture from this specimen again showed *Streptococcus viridans*. Shortly after aspiration, expansile pulsation and the systolic murmur disappeared in the mass, probably because of thrombosis.

Libman,[1] in 1906, reported a case with many similar features. In that case the patient was operated on and the diagnosis confirmed. Later, at necropsy, the causative agent, mycosis, was revealed as the cause of the aneurysm, in this instance in the femoral artery.

Libman states that mycosis is generally due to staphylococci or streptococci. "At the position of the embolic thrombosis there is first an exudative inflammation; then there is an acute periarteritis with destruction of the media, and the elastica and intima burst. As a result of these lesions, there is a bulging of the vessel, and in the wall of the dilatation all layers of the arterial wall are to be found. Such a condition must be considered an aneurysm."

It is possible that the aneurysm in this instance developed in much the same way. While it is true that mycotic aneurysms are characterized by their multiplicity, still instances have been reported before in which a single sacculation has occurred.

19 Garfield Place.

A CASE OF FATAL ANAPHYLAXIS FOLLOWING THE INTRAVENOUS INJECTION OF ANTI-MENINGOCOCCIC SERUM

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The recent article of Lamson[1] impressed me with the fact that the cases of so-called anaphylactic deaths are too few as gathered in the literature, and that physicians do not take the time and trouble to report such cases. The case recorded here ended fatally after the intravenous use of antimeningococcic serum.

REPORT OF CASE

W., aged 25, a soldier, was admitted to the meningitis ward of the base hospital, April 25, 1918, with a diagnosis that advised observation for cerebrospinal meningitis. The patient was taken ill, April 23, with occipital headaches, which were getting worse during the day; the night of the 24th, he vomited. He did not sleep on account of headache, and the next morning, he vomited three times.

The patient was well developed, was apparently in pain, complained bitterly of headache, and tossed restlessly in bed. There was no evidence of paralysis. The pupils reacted to light and in accommodation. There was no adenopathy; the throat was normal. There was no eruption on the body. The neck was distinctly rigid, and Brudzinski's sign was suggested. There was some hyperesthesia; the abdominal reflexes were diminished, the cremasteric were absent. Kernig's sign was present on the right, and absent on the left. Examination was negative for the Babinski reflex, and the Gordon and Oppenheim signs. The heart and lungs were normal. The pubic and axillary hair was scant.

A lumbar puncture was done immediately, and under great pressure 30 c.c. of turbid fluid was withdrawn, and 20 c.c. of antimeningococcic serum (Rockefeller) was given intraspinally. The laboratory report was that the cerebrospinal fluid contained gram-negative meningococci. The blood culture was negative.

As the patient's condition was growing worse, I decided to administer antimeningococcic serum intravenously. A careful history elicited the information that he never suffered from asthma, and that being around horses did not make him sick. I began to desensitize him by giving him 0.5 c.c. of antimeningococcic serum subcutaneously; in a few minutes, five

1. Libman: Cases of Mycotic Aneurysm, read before the Mount Sinai Clinical Conference in November, 1906.

1. Lamson, R. W.: Sudden Death Associated with the Injection of Foreign Substances, J. A. M. A. 82: 1091 (April 5) 1924.

urticarial wheals appeared, three on the abdomen and one in each axilla. The next dose of 1 c.c. was given half an hour later, with no untoward results. Two cubic centimeters was given in another half hour, and 5 c.c. in another half hour, with no signs of urticaria and without any symptoms. He was then given 15 minims (1 c.c.) of 1:1,000 epinephrin chlorid solution, and the solution was started very slowly. The solution used consisted of 30 c.c. of antimeningococcic serum in twice the amount of sterile physiologic sodium chlorid solution. While the solution was being given, the patient was carefully watched by the nurse. When about 60 c.c. of the solution had been introduced, the pulse suddenly became irregular, the skin cold and clammy, and cyanosis, slight at first, became quite pronounced. The injection was stopped, and 15 minims (1 c.c.) of epinephrin chlorid solution was injected; this was repeated in about ten minutes. Atrophin, caffein and vigorous artificial stimulation with cardiac massage were of no avail.

POSTMORTEM FINDINGS

Postmortem examination revealed flattening of the brain convolutions, with a purulent exudate over the vertex. The sinuses were normal. Smears showed the organism of Weichselbaum. The cord was edematous and surrounded by a purulent exudate. There was a large thymus, and hyperplasia of the spleen, with enlargement of the malpighian bodies. The aorta was small. There were numerous petechiae in the small intestine.

217½ Capitol Street.

DEFECTS IN TEST TUBES AS A CAUSE OF ANOMALOUS REACTIONS

M. W. LYON, JR., M.D., SOUTH BEND, IND.

Most workers in serology or allied subjects in which tests are made in glass tubes and set aside for several hours for reactions to occur have probably obtained results at variance with expectations or, if the tests were done in duplicate, results showing marked disagreement. I refer to such experiences as these: In a set of colloidal gold tubes all showing no change, one shows a change of 5. In washing erythrocytes in duplicate tubes, the longer the washing the more hemolysis appears in one tube, while the cells in the other tube wash clean. In a set of Wassermann tests done with several antigens, a serum showing a negative test with a cholesterolized antigen showed a four plus reaction with a plain extract antigen. The tubes in all these instances had been cleaned with the standard sulphuric acid and sodium bichromate mixture over night, and rinsed with running tap water six times and once with distilled water.

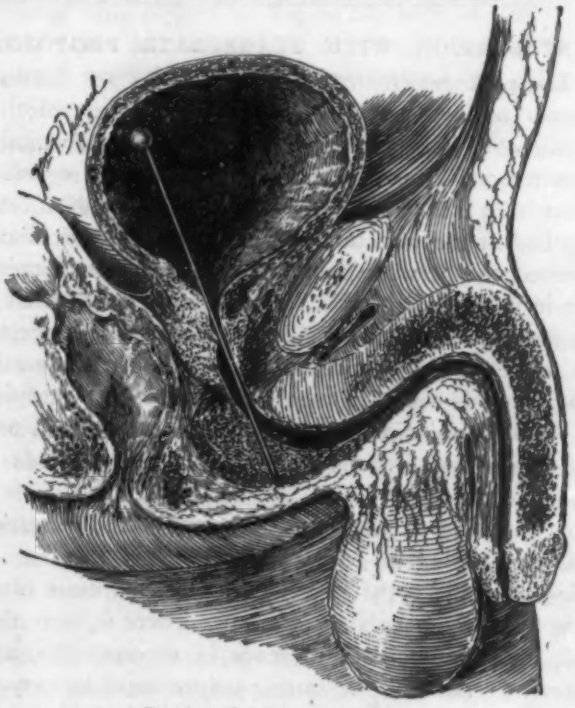
Examination of the tubes in which the anomalous reactions occurred showed that an air bubble had been caught in the glass during the manufacture of the tube, and had been drawn out into a fine capillary tube in the wall of the test tube. The thin wall of the capillary on the inside of the test tube had become broken, allowing some of the cleaning fluid to enter the capillary. Close examination with a hand lens revealed in some of these tubes small portions of the sulphuric acid-bichromate mixture. In other tubes, nothing was seen in the capillary tubes, but anomalous reactions occurring in these tubes and slight changes in hydrogen-ion concentration of distilled water placed in these tubes led to the conclusion that traces of the acid mixture had remained in the capillaries. Examination of many test tubes revealed a surprisingly large number with capillary tubes in their walls. Fortunately, the wall of the capillary in most instances is perfect. While the acid cleaning fluid is about the worst that could be used for tubes with the defects described, yet any other fluid, aside from distilled water, might influence reactions carried on in such tubes. Anomalous reactions resulting from the use of these defective tubes have not led to erroneous conclusions in carefully controlled work, but until the frequency of the capillaries in the walls of test tubes was noticed, such results have been disconcerting as to an explanation of their occurrence.

HATPIN IN MALE URETHRA

CHARLES S. LEVY, M.D., BALTIMORE

In the literature there are many case reports of hatpins introduced into the male urethra. In fact, these occurred with such frequency at one time that the *New York Medical Journal* (1910) had an editorial on the subject. This type of foreign body has been employed to start the urinary flow in stricture of the urethra and in obstruction caused by prostatic hypertrophy; it has also been used as a form of masturbation.

J. P., aged 64, had had intermittent attacks of hesitancy in starting the urinary flow. On these occasions, he would pass the ball end of a hatpin into the urethra for a distance of 3 or 4 inches. On withdrawal, the urine could be made to pass. The day the patient was brought to my office, he had introduced the beaded end of a hatpin into the urethra, when it suddenly slipped from his fingers and passed upward. Half an hour after the accident, the pointed end of the pin was felt in the perineum. The point had undoubtedly penetrated the wall of the bulbar urethra, the corpus spongiosum and corpora cavernosa, and lay free in the subcutaneous tissues. By pressure in the perineum, the point might have been made to pierce the skin and the entire length of the hatpin withdrawn externally until stopped by the beaded end. Then it might have been passed forward in the reverse direction from which it had been introduced. Instead, a No. 26 F Young's endoscope was employed. The hatpin was seen and released from the periurethral tissues by alligator forceps. The point was brought into the endoscope, and hatpin, alligator forceps and endoscope all removed together. The patient voided blood-tinged urine after this manipulation. There were no untoward effects.



Position of hatpin in urethra.

The pin was 6 inches long.

913 North Charles Street.

Agriculture Responsible for Disease Disappearance.—Bound up with the geographical limitations of certain diseases is the gradual disappearance of some of them with the development of agriculture and the cultivation of the soil. In the interests of human history, as well as of biological science, such diseases should be studied as thoroughly as possible while they are still accessible to investigation. The facts placed on record by such investigations may prove to be in their way as important as the opening of an Egyptian tomb. —Theobald Smith: *Edinburgh M. J.* **31**:228 (April) 1924.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 7, 1924

INFESTATION WITH FLAGELLATE PROTOZOA

The pathogenicity of various types of the different classes of protozoa for which the human intestine furnishes a habitat remains under active discussion. One reason for the still limited information regarding them from the standpoint of their possible medical bearing lies in the fact that the parasites are seldom discovered except when there is some intestinal ailment; for in normal health the feces are rarely submitted to microscopic examination. Another reason is suggested by the comparatively recent trend of interest, particularly in this country, toward the problems of tropical and subtropical diseases, with which the intestinal protozoa are most frequently associated in the minds of medical investigators.

A worker [1] in this field has made the assertion that obviously, in view of the large number of infested persons, the intestinal protozoans must often have little or no pathogenic effect. There is, nevertheless, much individual difference in susceptibility, and different strains of the same parasite seem to vary in the effects they produce. Moreover, it is highly probable, according to Chandler, that a great many slight and perhaps almost unnoticed symptoms, resulting in a certain amount of interference with the digestive tract and in a general lowering of the health, may find their ultimate cause in intestinal parasites, either protozoans or worms or both. The health of people living in warm and tropical countries, even aside from the effects of malaria and other warm-climate diseases, is proverbially less perfect than that of people in the usually more sanitary northern countries. Hence Chandler believes it is quite probable that intestinal protozoa may play a part in this lowering of the tone of health.

Among the protozoa that are actually found at times in the alimentary tract is the species *Trichomonas*. This is generally regarded as a harmless parasite, but to some writers there seems to be strong evidence that it often causes diarrhea, sometimes severe and of long duration. Epidemics of diarrhea and mild dysenteric symptoms in man apparently caused by *Trichomonas* have been reported from Brazil, Peru, China, Indiana and South Carolina, and it is probable that the parasite is at least mildly pathogenic wherever it occurs, tending to aggravate other intestinal ailments, if not causing them directly. As a rule, the intestinal flagellates and other protozoa that inhabit the alimentary tract of man or animals protect themselves against the unfavorable conditions for their existence outside the digestive tube by the formation of resistant cysts. In the encysted state they are not so subject to the destructive effects of desiccation or an unfavorable medium, so that they are thereby rendered capable of remaining in this state in a sort of torpid condition for long periods until they gain access to a new host. Unencysted, the protozoa might be expected also to succumb to the acid gastric juice of the stomach.

According to Hegner [2] of the School of Hygiene and Public Health at Johns Hopkins University, all the well established species of intestinal flagellates that live in man, except *Trichomonas hominis*, are known to form cysts. The cysts of this species that have been described by various workers were later found to belong to some other organism. The infestation of new hosts with intestinal flagellates is supposed to take place by ingestion of cysts. Obviously, this is not true of *Trichomonas hominis*, if no cysts are formed by this species.

Hegner argues that, if there are no cysts in the life cycle of *Trichomonas hominis*, and infection takes place by the method of contamination of the food of the host, then it must be the naked flagellate stage that is ingested. This species inhabits the region of the intestine in or near the cecum. Consequently, it must either be introduced in unsuspected ways, or retain its viability despite passage through unfavorable upper reaches of the gastro-enteric canal. Recent studies [3] on the behavior of trichomonads in the rat indicate that actively motile specimens of *Trichomonas muris* may remain actively motile in the stomach of this animal at least an hour after being ingested. They appear to have great viability, so that they can pass apparently unharmed from the mouth to the cecum. Infection can undoubtedly be set up in this organ. In the rat, the infestation of new hosts by ingestion of food and drink containing the flagellate stage is practically proved.

Hegner believes that conditions analogous to the foregoing probably exist in the case of *Trichomonas hominis*. Hegner and Becker [3] found the flagellate stage of this species more viable than that of certain other human intestinal flagellates. Thus, it is probably able to pass unharmed through the stomach and into the intestine,

1. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922.

2. Hegner, R. W.: Infection Experiments with Trichomonas, AM. J. Hyg. 4: 143 (March) 1924.

3. Hegner, R. W., and Becker, E. R.: The Diagnosis of Intestinal Flagellates by Culture Methods, J. Parasitol. 9: 15, 1923.

where it may initiate an infection. Hegner consequently believes that the infestation of man with *Trichomonas hominis* probably also takes place by the ingestion of contaminated food. This points the way to proper preventive measures. The possible rôle of intestinal bacteria in the establishment of the flagellate endozoal parasites was indicated recently in these columns.[4] An acidophilic flora seems to favor them, in contrast with conditions in which the predominant type of bacteria in the cecum is of the putrefactive variety. The bacterial flora can, to a certain extent, be modified by diet. Hence there looms up the possibility of dietotherapeutic effects on protozoa already implanted.

THE PURIN BASES OF THE URINE

The story of purin metabolism has lost much of the glamor that attached to it in the days when the physiology of uric acid was endowed with a greater clinical importance than is now accorded it. Two decades ago, uric acid was still being held responsible for all sorts of ills. The association of this interesting body component and waste product in some way with gout had been clearly demonstrated. From this arose the tendency to assume a variety of vague abnormal relations that were most easily disposed of by reference to a "uric acid diathesis." Clinicians were encouraged to indulge in hypotheses and undemonstrated assumptions in which the words "uric acid" were employed. The sick were warned to guard against any accumulation of this product, and they were advised how to become rid of that which was already entrenched in the suffering organism.

In the meantime, the development of biochemistry brought facts to light that gave impetus to a radical revision of the once accepted statements. Writing in THE JOURNAL in 1905 under the caption "Truth and Poetry Concerning Uric Acid," Barker reminded our readers that old theories have had their foundations washed out from under them years or decades before their fallacies have become generally recognized by the profession. It is easy, he remarks, to be too severe in criticizing the inertia of medical men in this respect, for the very conservatism that accounts for the facts mentioned has gone far to protect our guild from the too speedy welcoming of immature conceptions, on the one hand, and from the too easy rejection, on the other, of theories which, under assault by partisan or ignorant critics, prove ultimately to be sound. It is not an unwillingness to accept new truth nor a desire stubbornly to retain error that is characteristic of our profession, Barker adds. On the contrary, it is rather the fear of being duped concerning the new or of being cheated of old and well tried good that animates it and determines its action or inaction.

After the significance of uric acid as an end-product of purin metabolism in the body had been established, attention was directed to the other purins that are eliminated in the urine. The quantity is not large, and the difficulties of analysis have long encumbered the prospect of securing dependable information about these compounds. In 1898, Krüger and Salomon were able to identify at least seven different purin derivatives besides uric acid in human urine. Most of them were methyl purins. The output of these urinary purins has been estimated at from 15 to 45 mg. a day. Do they represent intermediate stages in the metabolism of food or tissue purins that have escaped conversion to uric acid or complete destruction? Does any unique significance attach to them in relation to disease, and particularly with respect to a possible interference with normal purin metabolism? If so, it might become diagnostically profitable to pay more attention to the urinary purin bases.

Jones [1] has insisted that the presence of the simple purins in human urine admits of a very clear explanation. In the organism, he argues, the purin groups of nucleic acid readily undergo deaminization with the final formation of the oxypurins, xanthin and hypoxanthin, and this is the case whether the nucleic acid originates from the food, from metabolism of the cell nucleus, or from the bodies of dead leukocytes. To the oxypurins thus formed is to be added the hypoxanthin formed in the living muscle. By the action of the xanthin-oxidase of the liver, the oxypurins are oxidized to uric acid; but, as the oxidizing ferment is present in only this one organ, an escape of small quantities of the oxypurins is scarcely surprising, and their presence in the urine marks out the path along which uric acid has been formed.

Further clarity has been introduced into the subject by investigations of Steudel and Ellinghaus [2] of the physiologic institute at the University of Berlin. A careful examination was made of human urine collected during periods of so-called purin-free diet from which nucleoproteins and their derivatives were excluded. Under such circumstances, none of the purin bases, such as adenin, guanin, xanthin or hypoxanthin, that are known to exist or form in the body made their appearance in the urine. Methyl purins alone were found. These, however, could be accounted for entirely by their methylated precursors in the tea, coffee or cocoa ingested. There is, accordingly, little reason to assume that the so-called purin bases of the urine are ordinarily other than exogenous in origin. They are not primarily derived from the metabolism of tissue components and have little to do with the genesis of uric acid. The methyl purins of the urine are referable to the methyl purins of the food, notably beverages.

4. Diet and Intestinal Protozoa, editorial, J. A. M. A. **81**: 1790 (Nov. 24) 1923.

1. Jones, W.: Nucleic Acids, London, Longmans, Green & Co., 1914.
2. Steudel, H., and Ellinghaus, J.: Die Purinbasen im Harn bei purinarmer Kost (Ein Beitrag zur Frage nach der Entstehung und Behandlung der Gicht), Ztschr. f. physiol. Chem. **127**: 291, 1923.

THE PATHOGENESIS OF RHEUMATIC FEVER

Rheumatic fever is one of a number of distressing maladies for which a really rational mode of treatment, based on known etiology, is still lacking. There is, of course, strong suggestion or perhaps even presumptive evidence that infection affords the correct explanation of the disorders to which the designation "rheumatic" has been applied. But today, as a recent writer has expressed the situation, it is surprising that, in spite of the great advance in the knowledge of the causation of most common infectious diseases, we still must recognize our uncertainty of the etiologic agent in rheumatic fever. In fact, it has even been alleged that there are two rather important features lacking in the infection picture. Although rheumatic fever does at times occur in epidemics, it is seldom transmitted to others; furthermore, one attack does not produce immunity or protect against another. To this regrettable uncertainty of causation is added the confusing fact that many diseases at times include joint pains—an outstanding gross clinical feature of rheumatic fever and an incident of many specific bacterial infections—as a part of their symptom complex; in fact, it is recorded that no less than eighty different pathologic conditions have been included under the term rheumatism.

Thanks to the persistent studies of a number of investigators, notably in recent times at the Hospital of the Rockefeller Institute for Medical Research, a more exact knowledge of the life history of rheumatic fever is being acquired. The histopathology of the most prominent lesions has been carefully worked out. They occur in the heart, the subcutaneous tissues, the joints, and also in the nervous structures, if one may include chorea minor in the category of disorders due to a common causative agent, the infective agent or virus of rheumatic fever. The most generally recognized specific histologic lesion of this disease is the so-called Aschoff body, a submiliary nodule located in the myocardium usually in close relationship with small blood vessels. The long known appearance of rows of small, beadlike excrescences along the free margins of the heart valves is characteristic of fatal cases, although the origin of the primary injury of these structures is still debated. Also, changes in the blood vessels are common.

Fibroid nodules have been observed in the subcutaneous tissues of rheumatic children. Swift[1] has remarked that these nodules attract attention clinically only on account of their mechanical presence. They are usually painless because they are not in close apposition to nerves. Involving only connective tissue, which has no important function except that of a supporting structure, they are not a local source of danger. Their chief significance is that they indicate a similar process going on in such important organs as the heart or the brain. Examinations made by Swift of the capsule of the knee or the ankle at the acute stages of rheumatic arthritis have indicated focal lesions of the synovia, focal necrosis of the capsule, thrombosis of the smaller arteries, and endothelial and perivascular reactions comparable with changes found in the heart and in subcutaneous nodules. The presence of many small nerves in the joint capsules and surrounding ligaments easily explains the great pain in rheumatic arthritis.

The conception that Swift has formulated of the essential pathology of rheumatic fever helps to reconcile the manifold and apparently unrelated manifestations of the disease. He pictures disseminated focal submiliary nodules with edema in the contiguous tissues during the acute stages, combined with lesion of the blood vessels. The drugs that bring relief affect the exudative processes; the small, disseminated lesions of a focal character are not so readily healed. Swift postulates two distinct types of response on the part of the body to the infectious agent of rheumatic fever; viz., proliferative and exudative. The perivascular proliferative type of lesion, resembling an infectious granuloma, explains the subacute and chronic character of the clinical symptoms in many patients with this disease. Marked exudation of serum into the periarticular tissues, and of serum and cells into the joint cavities, are concomitants of the acute arthritis occurring with high fever and general intoxication; these acute exudations disappear following the administration of certain drugs. But, Swift adds, their disappearance does not mean necessarily that all lesions of the proliferative type have resolved. In fact, we know that these last mentioned lesions, when present in the subcutaneous tissues, often continue for months; and from analogy we may conclude that they have a similar persistent character in other tissues of the body invaded by the causative agent of rheumatic fever.

1. Swift, H. F.: The Pathogenesis of Rheumatic Fever, J. Exper. Med. 39: 497 (April) 1924.

Current Comment

CARDIOVASCULAR REACTIONS TO HEMORRHAGE AND TRANSFUSION

Transfusion of blood has become a procedure of undeniable importance in clinical therapy. Indeed, there is a strange contradiction of custom in the current methods of furnishing an abundance of blood to certain persons when they are ill, whereas a century or more ago bloodletting was a favorite device for securing return to health. Many features of transfusion have been the subject of detailed investigation, notably the choice of technic and the biologic compatibility of the bloods that are to be mixed in the circulation of the recipient. Little attention has been accorded to the immediate effect of the blood loss on the donor, for experience has shown that restitution is speedy, and prolonged discomfort, not to say injury, almost never results. Nevertheless, hemorrhage is a phenomenon not without possibilities of physiologic reactions. An

insufficient blood volume may lead to inadequate filling of the right heart and a sequence of untoward events. It is fortunate, therefore, that accurate data regarding some of the immediate cardiovascular reactions to the withdrawal of blood for transfusion have been secured on man. The removal of a pint (500 c.c.) of blood—a not uncommon quantity—from an average sized person of 60 kg. body weight may be accomplished in a few minutes. On the assumption that in man the total blood volume comprises about 8 per cent. of the body weight, this amount corresponds to approximately 10 per cent. of the total blood volume. Observing the diastolic silhouette area of the heart by means of the roentgen ray, Eyster and Middleton [1] of the Department of Clinical Medicine at the University of Wisconsin have noted exceedingly slight reductions at most in the outlines. In all cases, area and transverse diameter had returned to within 2 per cent. of the normal an hour or less after the hemorrhage. There was usually a rather sharp fall in both systolic and diastolic pressures and a decrease in pulse pressure during and immediately after the bleeding, but returning rapidly to the approximate normal. In most cases, venous pressure also fell temporarily. Pulse rate changes were very inconstant and apparently without significance. In the recipient, also, transfusion increments of blood in amounts within 1 per cent. of the body weight resulted in only transitory alterations of cardiac size and blood pressures. Compensatory mechanisms cause a rapid readjustment to normal circulatory conditions, notwithstanding the altered blood volume. It is well to know how speedily effective the restoration to normal ordinarily is.

CHOLAGOGUES

In its strict interpretation, the expression cholagogue refers to an agent that may so stimulate the cells of the liver as to cause an increased secretion of bile. Since the early days of clinical observation, the fact that certain drugs when administered to man induce copious bilious stools has been supposed to indicate that the substances concerned possess a cholagogic action. Mild mercurous chlorid (calomel), in particular, was assigned to this group, which further included a number of long familiar drugs. As early as 1868, a British committee appointed to investigate the subject arrived at the conclusion that mercurous chlorid, mercuric chlorid and taraxacum—all reputed cholagogues—do not increase the flow of bile but probably act on the bile-expelling apparatus. Bile itself was early observed to exert a cholagogue action; but no cogent evidence has been brought in more recent years for the existence of other hepatic stimulants in the form of medicinal agents. A number have been proposed by various investigators. Whipple [2] has recently pointed out that when their experimental data are critically examined, one may find minimal fluctuations caused by a variety of drugs—salicylates, chloral hydrate, soaps, acids, albumoses. If cholagogue action is present, it is slight, delayed or transient, and is usually less than can be demonstrated as due to food factors (meat, for example). Such cholagogue reactions, Whipple finds, fade by comparison with the reaction caused promptly by bile salts. This reaction is constant and lasting, and of striking volume. Recently, Smyth and Whipple [3] have applied the latest experimental procedures to test the status of a number of substances that have at various times been alleged to influence bile flow and the content of dissolved substances in the secretion. They have observed only negative results with therapeutic doses; for example, of calomel, sodium salicylate and hydrochloric acid. Alcohol likewise had no constant influence on the output. Whipple [2] has properly insisted that, when the statement is made that a substance is a cholagogue, it should always be measured by the standard of the only known active cholagogue (bile salt); and, to date, all such substances fail when so tested. All dependable evidence warrants the recommendation that clinicians should consider the advisability of abandoning therapeutic efforts to "stimulate" the liver through the use of substances having alleged cholagogic effect; for neither the most widely advertised "little liver pills" nor decidedly bigger ones are destined to bring this about, however much a promotion of biliary flow may be desired in some cases.

1. Eyster, J. A. E., and Middleton, W. S.: Cardio-Vascular Reactions to Hemorrhage and Transfusion in Man, Am. J. Physiol. **68**: 581 (May) 1924.
2. Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2**: 440 (July) 1922.

THE FATE OF VITAMINS IN THE BODY

The conclusion that vitamins are highly essential to the welfare of the living organism, as so many recent investigations seem to indicate beyond peradventure, is based on the observation of nutritive failure and the appearance of so-called deficiency diseases when some of the food factors referred to are missing from the diet. It may almost be regarded as a corollary that, under conditions of a deficit in vitamin-bearing products, the body itself will become impoverished in these physiologically potent factors. For several types of vitamins, evidence is now available that this is actually the case. It has been found by Steenbock, Sell and Nelson [4] that the liver is an important center of fat-soluble vitamin storage, varying in its content of this substance with the ration fed. When the diet of the animal becomes poor in vitamin A, however, the liver becomes correspondingly depleted. The depletion of the same organ in vitamin B when the animal is deprived of an adequate supply of this factor has been demonstrated by Osborne and Mendel.[5] And now Parsons and Reynolds [6] have shown that, whereas the antiscorbutic factor, vitamin C, is found in relative abundance in the liver of normal guinea-pigs, the organ becomes deprived of it under conditions of feeding that result in scurvy.

3. Smyth, F. S., and Whipple, G. H.: Bile Salt Metabolism, IV, Negative Influence of Drugs, Atropine, Pilocarpin, Phlorhizin, Quinine, etc., J. Biol. Chem. **59**: 655 (April) 1924.
4. Steenbock, H.; Sell, M. T., and Nelson, E. M.: Fat-Soluble Vitamine, XI, Storage of the Fat-Soluble Vitamine, J. Biol. Chem. **56**: 327 (June) 1923.
5. Osborne, T. B., and Mendel, L. B.: The Effect of Diet on the Content of Vitamine B in the Liver, J. Biol. Chem. **58**: 363 (Dec.) 1923.
6. Parsons, H. T., and Reynolds, M. S.: The Depletion of Vitamin C in the Liver of the Guinea-Pig on a Scorbutic Ration, J. Biol. Chem. **59**: 731 (April) 1924.

Association News

THE CHICAGO SESSION

American Medical Golfing Association Dinner Changed to Smoker

To avoid conflict with the dinner to be given in honor of Dr. George H. Simmons, the local committee in charge of the tournament of the American Medical Golfing Association has decided to substitute for the annual dinner usually held immediately after play a golf smoker downtown, at 11 p. m., Monday, June 9. This will afford Fellows who attend the dinner to Dr. Simmons opportunity to enjoy both events, and will make it possible for those who miss playing to join in the evening festivities of the golfing Fellows. Full details about the smoker will be posted at the first tee and at the Registration Bureau.

Chicago Urological Society Luncheons

The Chicago Urological Society will give luncheons to visiting urologists at the Club Chez Pierre, 247 East Ontario Street, Wednesday and Thursday, June 11 and 12, during the recess of the section meetings for luncheon. Visiting urologists who will attend these luncheons are requested to send their names to Dr. Thomas F. Finegan, president of the Chicago Urological Society, 30 North Michigan Avenue, or to Dr. Harry Culver, secretary, 7 West Madison Street, Chicago.

Missouri Medical College, Class of '99

The Reunion Dinner of the Class of '99, Missouri Medical College, will be at the Morrison Hotel, Chicago, on the evening of Wednesday, June 11. About twenty-five members of the class have already signified their intention to be present. Information may be obtained from Dr. Francis Lane, 25 East Washington Street, Chicago, or from Dr. Adrien Bleyer, class secretary, University Club Building, St. Louis.

The American Association for the Study of Allergy

The American Association for the Study of Allergy will hold its second annual meeting Tuesday, June 10, at 1 p. m., at the Drake Hotel. Papers are to be read by Ray Shannon, St. Paul; Charles Hensel, St. Paul; George Jack, Buffalo; I. S. Kahn, San Antonio, Texas; A. H. Rowe, Oakland, Calif.; George Piness, Los Angeles; W. W. Duke, Kansas City, Mo.; K. K. Koessler, Chicago, and Harry L. Huber, Chicago.

Washington University, Class of '99

There will be a reunion of the Class of '99 of Washington University School of Medicine at the Morrison Hotel, Chicago, Wednesday, June 11. Dinner at 7 p. m. Alumni should communicate with Dr. Adrien Bleyer, St. Louis, who has this dinner in charge.

Clinics At Chicago Municipal Sanitarium

The Municipal Tuberculosis Sanitarium will conduct the following clinics at the close of the meeting:

Saturday morning, June 14, 10 to 12: Thoracectomy with Collapse of Lung in Pulmonary Tuberculosis and Lung Abscess. Dr. Wilder and D. Winner.

Saturday afternoon, June 14, 2 to 4: Artificial Pneumothorax Treatment in Lung Abscess and Pulmonary Hemorrhage. Dr. Winner and Staff.

The sanitarium is open, and Fellows who are interested in tuberculosis will find much that will repay a visit.

Lunch will be served at the sanitarium for visiting physicians. P. S. WINNER, Medical Superintendent.

Northwestern University Alumni Dinner

The annual dinner of the Northwestern University Alumni Association will be held at 6:30 p. m., Wednesday, June 11, at the La Salle Hotel. Tickets may be secured from Dr. A. A. Goldsmith, 29 East Madison Street, Chicago, or during the meeting at the Northwestern Booth, near the Registration Bureau on the Municipal Pier. The dinner will be informal and ladies will be welcome. Tickets $2.50 per plate.

Program of the Woman's Auxiliary of the American Medical Association

All sessions will be held at the Edgewater Beach Hotel.

TUESDAY, JUNE 10, 9 A. M.

Executive board meeting, board composed of all national officers, presidents and representatives of all states.

WEDNESDAY, JUNE 11, 7 P. M.

Subscription dinner ($2 per plate)

Toastmistress, Mrs. J. Allison Hodges, Richmond, Va.
Address of Welcome, Mrs. Jacques Holinger, Chicago.
Response and President's Report, Mrs. S. C. Red, Houston, Texas.
Address, "The Doctor's Wife as a Citizen," Dr. George E. Vincent, President, Rockefeller Foundation, New York.

THURSDAY, JUNE 12, 9 A. M.

General session: Reports from all states.

The wife of any member of the American Medical Association is entitled to membership in the Woman's Auxiliary, which was organized in St. Louis, May 26, 1922. The first annual meeting of the organization was held in San Francisco, July 28, 1923, under the presidency of Mrs. Samuel C. Red, Houston, Texas.

Visiting ladies are invited to attend the subscription dinner.

Meeting of Medical Missionaries

There will be a meeting of medical missionaries and physicians, dentists and nurses interested in medical work in foreign missionary fields in the auditorium at the East end of the Municipal Pier at 2 p. m., Tuesday, June 10.

Harvard Medical School, Class of '11

A reunion of the Class of '11, Harvard Medical School, will be held at the Edgewater Beach Hotel, Chicago, Thursday evening, June 12. Dinner will be served at 7 o'clock, so that all present may attend the President's reception at the Drake Hotel later in the evening. Dr. Franklin B. McCarty, 30 North Michigan Avenue, Chicago, is in charge of the arrangements.

Phi Rho Sigma Fraternity Luncheon

The Phi Rho Sigma Fraternity will have its luncheon at the Lake Shore Drive Hotel, 181 Lake Shore Drive, Chicago, at the noon hour, Wednesday, June 11. Dr. Russell D. Herrold, 7 West Madison Street, Chicago, is in charge of arrangements for the luncheon.

Phi Beta Pi Fraternity

The Chicago Alumni Association of Phi Beta Pi will have a reunion luncheon at the Surf Hotel, 501 Surf Street, Chicago, at 12:30, Wednesday, June 11. Tickets will be $2 per plate and can be secured at the Municipal Pier, or from Dr. B. B. Beeson, 7 West Madison Street; Dr. M. L. Black, 30 North Michigan Avenue, or Dr. E. J. Danek, 30 North Michigan Avenue.

Chicago Orthopedic Surgeons' Club—Spalding School for Crippled Children

The Chicago Orthopedic Surgeons' Club invites physicians attending the annual session to visit Chicago's day school for crippled children, the Jesse Spalding School, 1623 West Park Avenue, between the hours of 9 a. m. and 2 p. m. Guests can be accommodated at luncheon if an hour's notice is given.

Medical Veterans of the World War

The Medical Veterans of the World War will meet in the auditorium of the Municipal Pier at 4 p. m., Tuesday, June 10. After the presidential address of Col. C. J. Vaux, the meeting will be addressed by Surg. Gen. M. W. Ireland, U. S. Army, and Surg. Gen. E. R. Stitt, U. S. Navy. Reports of officers will be heard, and new officers will be elected. Col. Arthur T. McCormack, Louisville, is secretary of the Medical Veterans.

Bi Lambda Kappa Fraternity

The Bi Lambda Kappa Fraternity invites all Jewish physicians to attend a dinner at the Morrison Hotel, Wednesday evening, June 11, at 8 o'clock. Reservations may be made at a booth in the hotel, or by calling Midway 8619 after 6 p. m.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Archibald B. Elkin, director of the Good Samaritan Clinic, Atlanta, Ga., who was the guest of the Calhoun Medical Society at Anniston, Ala., May 20, gave an address on "Diseases of the Ductless Glands" and conducted a clinic at St. Michael's Hospital.

Birmingham's Tuberculosis Sanatorium.—Contracts have been awarded for the construction of the tuberculosis sanatorium in Birmingham for which that city and Jefferson County recently subscribed $200,000. The site is a tract of 83 acres on the Montgomery Highway, already bought and paid for. The city and the Board of Revenue have each pledged $20,000 a year for maintenance of the sanatorium. Work will start at once and the building will be ready for occupancy according to the contract in 240 working days.

ARKANSAS

State Medical Meeting.—At the annual convention of the Arkansas Medical Association, Fayetteville, May 20-22, the following officers were elected for 1924-1925: president, Dr. Herbert Moulton, Fort Smith; vice presidents, Drs. Harvey D. Wood, Fayetteville, Simeon J. Hesterly, Prescott, and Lorenzo T. Evans, Batesville; secretary, William R. Bathhurst, Little Rock (reelected), and treasurer, Robert L. Saxon, Little Rock. The next meeting will be held in Little Rock in 1925. Dr. William Allen Pusey, President-Elect of the American Medical Association, gave an address.

COLORADO

Foundation for Research in Tuberculosis.—The research work carried on for eighteen years at Colorado Springs by Dr. Gerald B. Webb and his associates has led philanthropic citizens of that city to undertake the development of "The Colorado Foundation for Research in Tuberculosis" for which articles of incorporation were recently filed in Denver. The foundation will not be for profit, but to conduct, assist and encourage research. Fifteen local and national philanthropists have been named the trustees. According to *Colorado Medicine* (June, 1924) the advisory council consists of Dr. Lawrason Brown, Saranac Lake, N. Y.; Col. George E. Bushnell, U. S. Army, retired; Dr. Livingston Farrand, Cornell University, Ithaca, N. Y.; Dr. Allen K. Krause, Johns Hopkins University Medical Department, Baltimore; Dr. James A. Miller, New York; Dr. Henry Sewall, Denver; Dr. Theobald Smith, Princeton, N. J.; Dr. Victor C. Vaughan, Washington, D. C.; Dr. Alexius M. Forster and Dr. Gerald B. Webb, Colorado Springs, Colo. The medical directors will be Drs. James J. Waring and William W. Williams, Denver; Drs. Frank L. Dennis, Philip A. Loomis and Gerald B. Webb, Colorado Springs. Colorado College has offered temporary laboratory facilities for the foundation and a large part of the endowment has already been subscribed.

CONNECTICUT

Personal.—Dr. G. H. Smith, professor of bacteriology at Yale University School of Medicine, New Haven, addressed the Central New York Branch of the Society of American Bacteriologists at Geneva, N. Y., May 19, on "The History of the Bacteriophage and Its Uses Clinically."——Dr. Arthur R. Couch has been appointed to the Hartford board of health to succeed Dr. John C. Rowley.

FLORIDA

State Medical Meeting.—At the annual meeting of the Florida Medical Association, May 13-14, at Orlando, the following officers were elected for the ensuing year: president, Dr. John C. Vinson, Tampa; vice presidents, Drs. John S. McEwan, Orlando, Louis S. Oppenheimer, Tampa, and Lawrence C Ingram, Orlando, and secretary, Graham E. Henson, Jacksonville (reelected). The next meeting will be held in St. Petersburg in 1925.

Society News.—The Randolph County Medical Society held a public meeting, May 1, 1924, to discuss the subject of malaria. Dr. S. T. Darling of the Rockefeller Foundation and Dr. M. A. Fort, state director of malaria control, were among the speakers.——The Fulton County Medical Society is publishing health articles once a week in the local newspapers. The first of the series was "Treatment and Control of Diabetes"; the second, "How Apparently Healthy People Spread Disease."

GEORGIA

Personal.—Dr. Eugene E. Murphey, Augusta, has been reelected president of the board of health for his fifth term. ——Dr. John G. Earnest, Atlanta, recently celebrated his eighty-second birthday. Dr. Earnest has practiced in Atlanta for more than sixty years.

ILLINOIS

Hospital News.—Ground has been broken in La Grange for the erection of the new $400,000 hospital building that will replace the La Grange Sanatorium recently destroyed by fire (THE JOURNAL, May 17, p. 1616). The first wing, completed, will accommodate 150 patients.

Personal.—Dr. Walter G. Bain, Springfield, was elected president of the Illinois State Academy of Science, at the annual meeting held, May 2, at Elgin.——Dr. Olive F. H. Kocher, Elgin, has been elected president of the Elgin Physicians' Club, to succeed Dr. Sally Y. Howell.

Chicago

Society News.—At a meeting of the Chicago Urological Society, May 22, the following officers were elected: president, Dr. Thomas F. Finegan, vice president, Dr. Vincent J. O'Conor, and secretary-treasurer, Dr. Harry Culver.

Judge Decides Medical Practice Act is Constitutional.—Judge Kavanagh of the criminal court of Cook County declared in a decision rendered in the case of Margaret Kabana, a chiropractor, charged with practicing medicine without a license, May 26, that the Illinois Medical Practice Act of 1923 is constitutional. The defense, represented by Clarence Darrow and others, argued that the act was unconstitutional. In this, the first decision on the constitutionality of this statute, Judge Kavanagh said among other things: "I have studied the decisions of the Illinois Supreme Court and the Medical Practice Act of 1923 carefully, and clearly understand the points that have been made against this legislation, but I think the act is not open to the objections made. I have no doubt about the constitutionality of this act. It seems to me to be clearly constitutional. I also regard it as wise legislation. Without such legislation, persons without any qualifications whatever would freely engage in the practice of healing diseases and the public would undoubtedly be harmed."

INDIANA

Hospital News.—Excavation has started on the $300,000 Lake County Tuberculosis Sanatorium at Crown Point.—— A new addition will be erected at St. Anthony's Hospital, Michigan City, at a cost of $150,000.——Dr. Simon P. Scherer, owner of the Highland Mineral Springs Sanatorium, Martinsville, will erect a $60,000 addition to the institution.

Society News.—At a recent meeting of the Northeastern Indiana Academy of Medicine at Kendallville recently, Dr. Oliver S. Ormsby, professor of skin diseases at Rush Medical College, Chicago, gave an illustrated lecture on "Diagnosis and Treatment of Parasitic Diseases of the Skin."——The Huntington, Blackford, Wells and Grant County Medical societies held a meeting at Warren, May 6, at which Dr. Charles D. Humes of Indianapolis presented a paper on "Neuro-Psychiatric Problems of Medicine and Surgery," and Dr. James H. Stygall, Indianapolis, on "Legislative and Educational Propaganda."

IOWA

Personal.—Dr. Julius Grinker, associate professor of nervous and mental diseases, Northwestern University Medical School, Chicago, addressed the Johnson County Medical Society at Iowa City, May 14, on "Idiopathic Epilepsy."

KENTUCKY

Hospital News.—A new $125,000 city hospital will be erected at Bowling Green, it is announced.——An addition will be erected at the Owensboro City Hospital, Owensboro, in the near future. Bids are being taken.——The cornerstone of the new nurses' home for the Speer's Memorial Hospital, Dayton, was laid recently.

MARYLAND

Conference of State Health Officials.—The annual conference of the state health officers will be held, June 6, at Osler Hall, Medical and Chirurgical Faculty Building, Baltimore. The conference will bring together all health officers in the state and others interested in health problems. The morning session will be devoted to addresses on public health; George E. Vincent, president of the Rockefeller Foundation, will be the principal speaker. There will be talks on "Cost and Results of Medical Inspection of School Children," by Dr. E. A. Jones, deputy state health officer; "Methods of Financing County Health Officers," W. N. Kirkman, state purchasing agent; "Tuberculosis Clinics," Dr. John M. Nicklas, clinical aid in the bureau of communicable diseases; "Sanatorium Treatment for Tuberculous Patients," Dr. Martin F. Sloan, president of the state tuberculosis association, Dr. William Seigal, superintendent of the Maryland Tuberculosis Sanatorium, Henrytown, and Dr. William A. Bridges, superintendent of Eudowood Hospital. At the afternoon session Dr. J. H. Schrader, director of the bureau of chemistry and foods at the city health department, will speak on the milk question, followed by a round table discussion of methods for the prevention and control of communicable diseases. Among questions to be discussed will be "Should Pneumonia Be Isolated?" and "The Etiology and Methods of Prevention in Scarlet Fever."

MASSACHUSETTS

Personal.—Dr. George S. Derby, assistant professor of ophthalmology, Medical School of Harvard University, has been appointed Williams professor of ophthalmology to succeed Dr. Alexander Quackenboss, who retired.——Dr. David Cheever is retiring from the Department of Anatomy of Harvard Medical School in order to devote more time to surgical work. His successor will be Dr. Robert M. Green.

MICHIGAN

Smallpox in Detroit.—During the week ending May 17, there were 118 cases of smallpox with fifteen deaths reported in Detroit, according to an announcement of the Detroit department of health. There have been, since the beginning of the year, in that city 1,155 cases of smallpox, and in the same period fifty-five deaths from that disease. A later report from Detroit adds that for the week ending May 24 there were 113 cases of smallpox in that city reported with fifteen deaths, and that 28,000 persons were vaccinated during the week. Certain sections of the city were circularized by the Boy Scouts who distributed 22,000 handbills. The public press and the clergy are cooperating to spread information concerning vaccination. All hospitals now require the vaccination of patients and personnel, and manufacturing industries have called on the city health department for assistance in vaccinating employees.

MINNESOTA

Reciprocity with Montana.—The State Board of Medical Examiners announces that reciprocity has been established with the state of Montana on the basis of licenses granted by an examination only.

MISSISSIPPI

State Medical Meeting.—At a meeting of the Mississippi State Medical Association, May 13-15, at Jackson, the following officers were elected for the ensuing year: president, Dr. Hugh H. Haralson, Forest; vice presidents, Drs. William J. Anderson, Meridian, Charles A. McWilliams, Gulfport, and Daniel C. Montgomery, Greenville; secretary, Dr. Thomas M. Dye, Clarksdale, and treasurer, Dr. James M. Buchanan, Meridian. The next meeting will be held in Biloxi in 1925.

MISSOURI

Personal.—Dr. Frank C. Neff, Kansas City, has been appointed professor of pediatrics at the University of Kansas School of Medicine and pediatrician-in-chief to the Bell Memorial Hospital, Rosedale, Kan.

MONTANA

Sterilization Inquiry.—The state board of eugenics, comprising Drs. Charles R. Monahan, William F. Cogswell and Caroline McGill, held a special meeting at Warm Springs, recently, to inquire into operations which, it is reported, had been conducted at the State Insane Asylum for the purpose of sterilization. It was said that twenty-one such operations had been done, some of which were performed without the consent of the board of eugenics as provided by the law.

NEBRASKA

Nebraska Association of Medical Women.—At a meeting of this association, May 13, at Omaha, Dr. Inez C. Philbrick, Lincoln, was elected president to succeed Dr. Emelia E. Brandt, Omaha. Dr. Martha MacVean, Nebraska City, was elected vice president, and Dr. Margaret E. Hammond, Lincoln, secretary-treasurer.

State Medical Meeting.—At the meeting of the Nebraska State Medical Association, May 13-15, at Omaha, the following officers were elected for the ensuing year: president, Dr. Palmer Findley, Omaha; vice presidents, Drs. Frank S. Owen, Omaha, and Roy D. Bryson, Callaway; secretary-treasurer, Dr. Roy B. Adams, Lincoln, and editor, Dr. Francis A. Long, Madison, reelected.

NEW JERSEY

Chiropractors Arrested.—According to a report from the state board of medical examiners, Meade H. Whiteside was found guilty, May 22, of practicing medicine without a license and was fined $500, which he refused to pay. He was then sentenced to thirty days in jail.——Lynn Frye of Mount Holly, who was also found guilty on a second charge of practicing medicine without a license, was fined $500. He also refused to pay and was sentenced to thirty days in jail. ——Louis Nalitt of Bayonne, who was arrested, May 27, for practicing medicine without a license, pleaded guilty and was fined $200 for the first offense.

NEW MEXICO

New Mexico Medical Society.—At the annual meeting of this society at Santa Fe, May 27-29, the following officers were elected for the ensuing year: president, Dr. J. W. Stofer, Gallup; president-elect, Dr. D. B. Williams, Santa Fe; vice presidents, Drs. C. F. Beeson, Roswell, E. M. Fiske, Santa Fe, and C. B. Elliott, Raton, and secretary-treasurer, Dr. Charles M. Yater, Roswell. The next meeting will be held in Clovis, in 1925.

Conference on Medical Problems of Indians.—Representatives of the Department of the Interior, physicians of McKinley County and all physicians in the employ of the Indian Service on the local Indian reservation met at Gallup, April 21, to confer on health problems which concern the Indian. Dr. Hubert Work, Secretary of the Interior; Commissioner Burke, Bureau of Indian Affairs; Dr. John McMullen, trachoma specialist, U. S. Public Health Service; Dr. Robert E. Lee, Newberne, chief medical supervisor of the Indians; Herbert G. Hagerman, commissioner of the Navajo Indians; Dr. Rudolph D. Moffet, New York City, head of Presbyterian mission work; Dr. George S. Lukett, state director of public health; Dr. James W. Bazell, Navajo County health officer, and others from distant places were present. The morning session of the conference was given over to a discussion of trachoma, and the afternoon session to tuberculosis. It was shown that there are about 35,000 Indians on the Navajo reservation, and that only nine physicians were on duty with them. It was mentioned that the Indians are scattered over a wide territory, and that it is difficult to keep the allowed quota of physicians among them, owing to the isolation and the inadequate salaries which physicians receive for this service. The fact was brought out that physicians on the reservation are under the supervision of school superintendents, who are only indirectly interested in medical problems. Dr. Work agreed to organize the medical service with a physician in Washington at its head, but he considered it impossible to accomplish all that had been suggested at this conference owing to a lack of funds. He called attention to the fact that this is not entirely a government problem, and that local and state health officers should become actively engaged in a campaign against trachoma and tuberculosis, particularly in preventing their spread among the white population.

NEW YORK

Personal.—Dr. Victor C. Jacobson, professor of pathology, Albany Medical College, has been awarded a grant of $250 by the Committee on Scientific Research of the American Medical Association for the experimental study of endometrial implantation and its relation to epithelial tumors of the ovary.——Dr. Irving Van Woert, Delmar, and Dr. Robert

Knight, Seneca Falls, have been appointed epidemiologists in the state department of health. Both appointees are graduates of courses in public health.

New York City

Academy of Medicine Site Sold.—The contract for the sale of the site at Park Avenue and Sixtieth Street, originally selected for the new home of the New York Academy of Medicine, has finally been signed. The academy obtained one million dollars for the property.

Site for Chlorin Gas Clinic Changed.—The clinic for the study and treatment of certain respiratory diseases with chlorin gas, which the health department is conducting, has been opened at the public health station at 345 East One Hundred and Sixteenth Street, instead of at the Willard Parker Hospital, as was first announced.

Income of Opera House for Hospital.—The Consistory of Scottish Rite Thirty-Second Degree Masons of New York City has voted to use the income from the Manhattan Opera House, which is owned by the consistory, to establish and maintain a hospital for the treatment of chronic diseases. The hospital will have a laboratory bureau for general research work. Authority has been given to the trustees to purchase a building or land.

East Side Health Survey.—The Association for Improving the Condition of the Poor has conducted a health survey in the Mulberry district at Broadway and the Bowery for the last six years. A report was made public, April 5. Pneumonia was by far the leading cause of death in the district. The average death rate from pneumonia during the six years was 4.38 per thousand, against 1.78 for New York City as a whole. It also reported that 44.8 per cent. of the deaths of children of preschool age were caused by pneumonia.

Quack Arrested.—"Dr." Orin W. Joslin and his assistant Miss Claire A. Johnson were held in bail by Magistrate Brough, May 20, on a charge of practicing medicine without a license. Joslin, it is reported, occupied a luxurious suite of offices of eleven rooms at 363 Riverside Drive where he treated all manner of ailments by means of "radio waves," and mulcted hundreds of credulous patients. Joslin's radio device was tested by experts, the assistant district attorney said, and found such an imperfect machine that it would not detect a clap of thunder nearby.

Cancer Institutes Opened.—The Manhattan Cancer Clinic, established by the department of public welfare at 124 East Fifty-Ninth Street, Manhattan, is expanding its work. It is now prepared to care for twenty-four patients for a period of ten days. Patients who require more than ten days' treatment will be sent to the Cancer Hospital on Welfare Island, where seventy patients are being cared for. Deep roentgen-ray machines which make it possible to treat two patients at the same time have been installed. A large number of beds are available in the Metropolitan and City hospitals on Welfare Island for cancer patients, and the treatment is free. Commissioner of Public Welfare Bird S. Coler has opened a second cancer institute at the old Cumberland Hospital in Brooklyn, where shortly there will be a bed capacity of 200. More than $200,000 is being spent to improve this institution. Dr. Charles H. Mayo gave an address at the formal opening of both of these institutes.

NORTH CAROLINA

Personal.—Dr. Morrill L. Ilsley, formerly director of the western division of the state board of health, has been appointed professor of hygiene and preventive medicine at Colgate University, Hamilton, N. Y.——Dr. John C. Twitty, Rutherfordton, was elected full time health officer of Rutherford County.

Hospital News.—Leaksville Hospital, being erected by Dr. Carl V. Tyner at a cost of $50,000, is nearing completion. It will accommodate thirty patients.——The new Baptist hospital, located on the site of the old Tranquil Park Sanatorium, Charlotte, will be opened, about June 1, it is announced. An addition is also being erected to the old hospital building which will give the hospital a capacity of 106 beds.——An addition to the Lawrence Hospital, Winston-Salem, was opened about May 15.

OHIO

Smallpox.—It is reported there are more than 100 cases of smallpox at Upper Sandusky, and that an outbreak has occurred in a construction camp at Kenton. Dr. Gainor Jennings of the state health department, Columbus, while investigating the latter outbreak, stated that there have been many mild outbreaks in the state and that in several cases death has resulted. Smallpox has recently been reported at Minster and at Dundridge.

Personal.—Lieut.-Col. Courtney P. Grover has resigned as chief surgeon of the National Military Home, Dayton. Colonel Grover is now under treatment at the Marion National Sanatorium, National Military Home, Ind. He was recently missing several days, and was found in a hotel in Cincinnati.——Dr. Shiro Tashiro, an associate professor of biochemistry in the University of Cincinnati College of Medicine, will leave soon for Japan to receive the Gakushiin prize from the Imperial Academy of Arts and Sciences. The bestowal of this prize in Japan is considered a national event.——Dr. William H. Fisher, Toledo, won the annual 1924 championship of the Ohio Medical Golfing Association, whose tournament precedes the annual convention of the State Medical Association. Dr. Fisher turned in a gross total of 169 for thirty-six holes.——Dr. John M. Withrow, Cincinnati, for twenty years a member of the board of education and for the last twelve years its president, has resigned to devote himself to professional duties.——Dr. Charles B. Rogers, for thirteen years resident medical director of the Cincinnati Sanatorium, has resigned to resume charge of Orchard Springs Sanatorium, Dayton, succeeding Dr. Frank R. Lord, resigned.——Dr. George J. Hance has been appointed coroner of Miami County.——Dr. Anthony M. Martin, Tiffin, recently celebrated his ninety-third birthday. He was in practice for sixty-two years.

OREGON

License Revoked.—The Oregon State Board of Medical Examiners has announced that the license of Dr. Dan E. Standard, who has been practicing at Warrenton, has been revoked.

Portland Wants Milk Pasteurized.—The last two epidemics in Portland having been traced to unpasteurized milk, the Oregon Public Health League has started a campaign for the general pasteurization of milk in that city. A resolution was recently presented to the City and County Medical Society, which in part was as follows: "Resolved, that the chairman of the Oregon Public Health League, the president of the Oregon State Medical Society, the president of the Portland City and County Medical Society and the dean of the University of Oregon Medical School be requested to appoint a committee of three to meet with the state board of health, jointly with the city board of health and the state dairy and food commissioner, that a general investigation and discussion may take place and scientific knowledge be given the public by the medical profession of this state."

PENNSYLVANIA

Plans for Camp Happy.—The Philadelphia Health Council and Tuberculosis Committee and the City Department of Welfare will reopen Camp Happy, June 24. Capt. B. S. Walton will be in charge. The camp will be enlarged to take care of 1,000 children this summer, each to have the benefit of at least two weeks of outdoor life at Torresdale.

Children's Welfare Program.—Dr. Ellen C. Potter, state welfare secretary, in speaking to one hundred representatives of hospitals, welfare organizations and private societies interested in the care of crippled children, in conference in Harrisburg, May 21, stated that an appropriation of $1,000,000 in the next two years will be required to enable the state to look after the welfare of crippled children. An appropriation of $112,000 would be required to establish a corps of field orthopedic nurses, provide beds in general hospitals for crippled children and open clinics for them. The department of public instruction would need $500,000 to provide special education for handicapped children.

Philadelphia

Honor to Dr. George E. de Schweinitz.—On May 12, Dr. George E. de Schweinitz addressed the Société Française d'Ophtalmologie in the amphitheater of the University of Paris Medical Department. At the conclusion of his address, he was presented with a large bronze plaquette. After the address, a dinner was tendered to him, and on the following day he was unanimously elected an honorary member of the society. On May 18, he addressed the Société d'Ophtalmologie Belgique and was unanimously elected a member of that organization.

Six Quacks Arrested.—Warrants were issued, May 26, for the arrest of six quacks on evidence furnished by the chief of the district attorney's detective force. In the party lodged

in cells at the city hall was Joseph Letchkosski, alias Dr. Lentz; Salvi Goldenburg, and Gabriel Beauvides Mendina. Letchkosski said he graduated from a medical college in Russia but had lost his diploma. Goldenburg said he came from Austria less than three months ago, and that most of the patients were of the mail-order type. However, he sold Detective Friedman medicine for an imaginary gallstone attack and charged him $24. Detective Shocker visited a woman quack, asking for treatment for rheumatism and was given a prescription directing him to steal a white potato and wear it on the site of the pain. He was also directed to rise at 2 o'clock every morning and take a teaspoonful of "salts." The woman demanded $1 for this advice. The drive against quacks which has been started in this city by the district attorney is receiving the cooperation of the Philadelphia County Medical Society, the State Bureau of Medical Licensure, and the Homeopathic County Medical Society.

Personal.—Dr. Chevalier Q. Jackson has resigned his chair as professor of laryngology at the Jefferson Medical College of Philadelphia to accept the newly created chair of bronchoscopy and esophagoscopy in the same institution, according to the announcement made by the dean, Dr. Ross V. Patterson, May 19. Dr. Jackson graduated from Jefferson in 1886, and since 1917 has occupied the chair of laryngology in that college. Prior to 1917 he held a similar chair in the University of Pittsburgh School of Medicine.——Dr. Fielding Otis Lewis, who will succeed Dr. Jackson in the chair of laryngology at Jefferson, has been associate professor of laryngology at Jefferson.——Dr. William H. Long has been appointed medical director of the Misericordia Hospital to fill the vacancy caused by the recent death of Dr. Ernest Laplace.——Dr. Basil R. Beltran has been appointed one of the chief surgeons of the Misericordia Hospital. Dr. Beltran is on the surgical staff of St. Mary's Hospital and of Philadelphia General Hospital, and was recently made an assistant professor in the Graduate School of Medicine of the University of Pennsylvania.—— Dr. Thomas B. Holloway has been elected professor of ophthalmology at the University of Pennsylvania School of Medicine, Philadelphia, to succeed Dr. George E. de Schweinitz.——Dr. George M. Dorrance, Jr., has resigned his chair as professor of plastic surgery in the Woman's Medical College on account of private practice and his work at the University of Pennsylvania; his staff, including Dr. J. William Bransfield, clinical professor, Dr. Eugene C. Murphy and Dr. H. A. McKnight, assistant professors, automatically resign; also Dr. John Stewart Rodman has been appointed by the board of corporators of the Woman's Medical College to succeed Dr. Dorrance. Dr. Rodman for several years has been secretary of the National Board of Medical Examiners in this city.

SOUTH DAKOTA

South Dakota State Medical Association.—At the forty-third annual meeting of the association in Mitchell, May 20-21, the following officers were elected for the ensuing year: president, Dr. Robert L. Murdy, Aberdeen, to succeed Dr. Francis E. Clough of Lead; vice presidents, Drs. William R. Ball, Mitchell, Theodore F. Riggs, Pierre, and Silas M. Hohf, Yankton, and secretary, Dr. Robert D. Alway, Aberdeen (reelected). The next meeting will be held in Sioux Falls in 1925. The association adopted a resolution to memorialize congress to enact a law which would require all firms to label lye manufactured for household purposes.

TENNESSEE

Personal.—Drs. Harrison H. Shoulders and Samuel P. Bailey, both of Nashville, were elected president and secretary, respectively, of the Middle Tennessee Medical Association, May 9, at the annual meeting.——Dr. Fred C. Watson, Memphis, has accepted a position with Cuyarnel Fruit Company, Puerto Cortez, Honduras.——Dr. Joseph B. Hibbitts, Jr., Nashville, recently completed a three weeks' course for flight surgeons at the aviation school, Long Island, New York.——Dr. Herbert Acuff, Knoxville, was reelected president of the Tennessee Anti-Tuberculosis Association at the annual meeting in Columbia. Drs. Ira O. Park, Union City, John S. Freeman, Springfield, Joseph L. Edwards, Brownsville, and James J. Durrett, Memphis, were elected directors.

TEXAS

Personal.—Dr. Arthur C. Scott, Temple, has resigned as a member of the state board of health.—— Dr. Richard McCormick, Waco, has been appointed full-time health officer of McLennan County.

Hospital News.—A two-story brick hospital will be erected at McAllen at a cost of approximately $25,000.——The Dallas Baby Camp and Hospital will be erected in Dallas at a cost of $50,000, it is reported.

Chiropractor Fined and Jailed.—J. E. Guyton of Alpine, who was tried, May 19, before County Judge Burke, was found guilty of practicing medicine without a license. He was sentenced to pay a fine of $50 and to one hour in jail.

WEST VIRGINIA

State Medical Meeting.—At the fifty-seventh annual meeting of the West Virginia State Medical Association, held in May, at Wheeling, the following officers were elected for the ensuing year: president, Dr. George D. Jeffers, Parkersburg; vice presidents, Drs. William T. Morris, Wheeling, Charles B. Wylie, Morgantown, Delivan A. MacGregor, Wheeling; treasurer, Dr. Hugh G. Nicholson, Charleston, and secretary, Dr. Delivan A. MacGregor, Wheeling. The next meeting will be held in Bluefield in 1925.

WISCONSIN

Judge Rules Chiropractors May Not Use "M.D."—Judge Page recently ruled in a Milwaukee district court that chiropractors cannot use the title doctor even though conferred on them by an "accredited school," and he fined Ferdinand Wisher $100 for using the title. It is said that Wisher will appeal to the supreme court.

Personal.—Dr. William S. Middleton, Madison, has been appointed a member of the state soldiers' rehabilitation board by the governor. The other members of the board are Drs. Cornelius A. Harper, state health officer, and William F. Lorenz, director of the State Psychiatric Institute.——Dr. Lawrence G. Sykes, Milwaukee, has moved to Hartford, Conn., to become medical director of the Connecticut General Life Insurance Company.——Dr. August Sauthoff, Madison, has been appointed clinical director of the Wisconsin State Hospital for the Insane at Mendota.——L. J. Woodworth, city sanitary inspector of Janesville, has been appointed assistant city health officer.——Dr. Roy A. Barlow, formerly of the Mayo Clinic, has joined the staff of the Jackson Clinic, Madison.——Dr. Samuel D. Greenwood, Neenah, has been elected chief of the staff of the Theda Clark Memorial Hospital.——Dr. John F. Brown, Waupun, has been elected president of the Rotary Club of that city.——Dr. Joseph J. Bellin, Green Bay, has been elected president of the Deaconess Hospital board of that city.

CANADA

Vital Statistics.—The net increase of people born in Canada during the ten years 1911-1921 has recently been announced as being 1,213,065 people, or 21.59 per cent. of the total population; in the previous ten years the increase was 947,867 people, or 20.29 per cent. of the total population.

Society News.—The American Therapeutic Society will hold its twenty-fifth annual meeting in Toronto, June 6-7, under the presidency of Dr. George H. Evans, San Francisco. Dr. Robert Dawson Rudolf of Toronto will deliver the address of welcome and Prof. John J. R. MacLeod will speak on "The Physiology of Insulin."

HAWAII

Medical Society Election.—At the annual meeting of the Medical Society of Hawaii, April 26-28, Honolulu, the following were elected officers for the current year: president, Dr. Charles R. McLean; vice president, Dr. Gideon M. Van Poole; recording secretary, Dr. Wah K. Chang; treasurer, Dr. Guy C. Milnor. Dr. Forrest J. Pinkerton was elected corresponding secretary which position has been made somewhat permanent, and all correspondence to the society should be directed to this office at 46 Alexander Young Building, Honolulu.

GENERAL

More Funds for Greece.—Another $100,000 to aid destitute refugees in Greece has been placed in the hands of the American committee in Athens. The American Red Cross has expended, since the Asia Minor exodus, a total of $2,705,696 for Greek relief.

Conference on Health Education.—At the invitation of the Massachusetts Institute of Technology, a working conference in health education will be held in Cambridge, Mass., June 23-28. The conference which was called by the Health Education Division of the American Child Health Association will be limited to 100.

American Gynecological Society.—At the annual meeting of this society, May 15, at Hot Springs, Va., the following officers were elected for the ensuing year: president, Dr. Howard C. Taylor, New York; vice presidents, Drs. Franklin S. Newell, Boston, and Frederick J. Taussig, St. Louis; secretary, Dr. Arthur H. Curtis, Chicago, and treasurer, Dr. Charles C. Norris, Philadelphia.

Directory of County Health Officers.—The name, address, county and official title of all of the whole time county health officers in this country were published in the United States Public Health Reports, May 16, 1924. A similar directory for city health officers will be published later. All the health officers listed are doctors of medicine except one, who is a doctor of philosophy.

National Board Diplomates Meet in Chicago.—Arrangements have been completed for a luncheon meeting in Chicago, June 12, of all the diplomates of the National Board of Medical Examiners who may attend the annual session of the American Medical Association. The board has arranged for a booth in the scientific exhibit at the Municipal Pier to serve as headquarters for visiting diplomates and as a center of information for members and friends of the board.

Association for the Study of Internal Secretions.—The eighth annual scientific session of this association will be held at the Drake Hotel, Chicago, June 9. The speakers will be Lester R. Dragstedt, Chicago; Walter M. Boothby, Rochester, Minn.; Rollin T. Woodyatt, Chicago; Russel M. Wilder, Rochester, Minn.; John R. Murlin, Ph.D., Rochester, N. Y.; Karl Petren, Lund, Sweden; C. H. Best, Toronto, Canada; Herbert M. Evans, Berkeley, Calif.; Edgar Allen, Columbia, Mo.; Edward A. Doisy, St. Louis, and S. Shapiro, New York City.

Field Representative for Cancer Society.—Dr. William F. Wild has been appointed field representative of the American Society for the Control of Cancer, having left the position of executive secretary of the Minnesota Public Health Association to accept that position. Dr. Wild, who is a graduate of Tulane University of Louisiana School of Medicine, New Orleans, and of the Harvard-Massachusetts Institute of Technology School for Health Officers, was formerly connected with the U. S. Public Health Service and was successively director of laboratories, epidemiologist, and state health officer of Nebraska.

Narcotic Imports Decrease.—According to a report of the head of the narcotic division of the Prohibition Unit, Washington, D. C., the sale and use of habit-forming drugs in the United States is on the decrease. Importation of opium, the report states, has decreased from 471,000 pounds annually for the ten year period prior to the effective date of the Harrison Narcotic law in 1915 to slightly less than 136,000 pounds in 1922. For the six months ending Dec. 31, 1923, the importation of opium particularly showed a decrease while the sales of the various alkaloid derivatives of opium fell off 50 per cent. over the previous six months.

American Journal of Pathology.—The general education board of the Rockefeller Foundation has appropriated the sum of $7,500 a year for five years to the American Association of Pathologists and Bacteriologists to support the *American Journal of Pathology*. The *American Journal of Medical Research*, now the official organ of this association, will change its name, January, 1925, to the *American Journal of Pathology*, which will then be the official organ of the association. Dr. Frank B. Mallory, the present editor, will continue the editorship of the journal under its new name.

Foreign Visitors.—Prof. John Sendziak, Warsaw, Poland, was the guest of the section of otology at the New York Academy of Medicine, May 23, when he spoke on "Problems in Otology and What Poland Is Doing Toward Their Solution."——Dr. Nils H. Heitman, chief tuberculosis officer of the Norwegian government, and Dr. Germund Wirgin, Sweden, are traveling in the United States as guests of the Rockefeller Foundation to study public health work in large cities.——Dr. J. Basil Hume, exchange professor of surgery from England at the University of Michigan Medical School, Ann Arbor, Mich., gave an address before the members of the staff of the Foote Memorial Hospital at Jackson, May 13.

Reduction of Income Tax.—Taxpayers who elected to pay their income taxes during the current year in four instalments and who paid on or before March 15 one fourth of the year's tax due under the old law, must pay the second instalment on or before June 15. Under the revenue act just passed, the June instalment is equal to one half of the amount paid in March. Instalments payable in September and December each equals three fourths of the March payment. Instalments due in September and December may, however, be paid immediately if the taxpayer so desires. Those taxpayers who paid on or before March 15 the full amount shown by their returns to be due under the old law will receive from the Treasury Department a refund of 25 per cent. Taxpayers who then paid 75 per cent. of the amount shown to be due for the year have no further payments to make.

British Association for the Advancement of Science.—At the ninety-second annual session of the British Association for the Advancement of Science which will be held in Toronto, Canada, August 6-13 (THE JOURNAL, May 17, 1924), Major Gen. Sir David Bruce will assume the presidency of the association in succession to Sir Ernest Rutherford and will deliver the presidential address on "Advances Made in Our Knowledge of Disease" at the inaugural general meeting, August 6. The association is organized in thirteen sections: mathematical and physical science; chemistry; geology; zoology, geography; economic science and statistics; engineering; anthropology; physiology; psychology; botany; educational science; agriculture. Addresses will be delivered by the sectional presidents and papers will be read on and after August 7. There will be a series also of popular lectures during the week by prominent visitors. Arrangements are being made with the railway companies for reduced rates on return fares. Hotel accommodation should be reserved in advance of the meeting.

Extent of Rural Health Service.—The Rural Sanitation Office of the U. S. Public Health Service has published a tabulation by states of counties or districts in the United States which on Jan. 1, 1924, were provided with local health service under the administration of whole time health officers. There are thirty-six counties in the list which were not previously provided with rural health service and sixteen counties which discontinued their health services, leaving a net gain for the year of twenty counties and a total of 250 for the entire country. Most of the increases during the year were in states in which the state health departments or the International Health Board, or both, with the cooperation of the U. S. Public Health Service, were enabled to assist with technical advice and finances. The largest loss of units was in Vermont, where ten district health departments were terminated, June 30, 1923. Vermont's district health officers, who for several years had furnished whole time health service to all the rural districts in the state, were appointees of the state board of health, which paid them from a special appropriation. The local governing bodies technically had no say in their appointment and appropriated no local taxes for this service. Had they been partners in the health business, sharing political and financial responsibility for its success, instead of having all the health service come from the state capitol, the result of the attack made in the legislature in 1923 on the district health service, says the U. S. *Public Health Reports*, would have been different. Vermont, it is said, was an illuminating example of a state which did more than its proportionate part in local health service.

Child Health Demonstration in Far West.—The Commonwealth Fund Committee recently announced that some community in the Far West would be selected for a five-year child health demonstration as a contribution to a national program for the health of children. The paramount consideration in selecting the community which will receive assistance and have an opportunity to show how much it may do to safeguard the health of its mothers and children will be the sincerity of the community's desire to develop and complete a rounded child health plan for the community as a whole. The objectives of this demonstration, which will be the fourth to be organized with the assistance of the Commonwealth Fund Committee, will be: (1) a careful inventory and study to determine the health needs of the community; (2) to prepare a program that may adequately meet these needs; (3) to select a personnel of such training and experience as may give reasonable assurance of maximum results; (4) to measure and evaluate methods, results and costs for general publication, and (5) to conduct the demonstration along practical lines so as to stimulate other communities in the Far West to undertake similar activities. The attitude of the committee to the medical profession of the community to be selected, whose sympathetic support and hearty cooperation the committee considers necessary to success, is expressed in the last annual report as follows: "Whatever be the merits of state medicine, the Commonwealth Fund is not lending its

influence to anything of the sort. It has no desire to interfere with the practice of private physicians; on the contrary, their cooperation has been sought and freely offered. An educational and preventive program of this character, far from decreasing the need of the physician's service, should increase it. Absolutely no remedial work is or will be done; while the influence of the demonstration staff is constantly exerted in educating people to make use of the physician's services in order not alone to get well but to keep well."

FOREIGN

Italian Hospital at Tokyo.—The Italian Red Cross sent to Japan materials for ten small hospitals, and the first was dedicated recently with much ceremony. It is constructed on the "Messina plan," that is, the type found most useful after the Messina earthquake a few years ago and best adapted to resist earthquakes.

Memorial to Sir Malcolm Morris.—At a recent meeting of representatives of the various hospitals and organizations with which the late Sir Malcolm Morris was connected, it was resolved to perpetuate his memory by providing for an annual lecture on the preventive aspects of public health and dermatology. It is hoped also to endow a bed for skin diseases at St. Mary's Hospital, London, England. A representative committee was appointed of which N. Howard Mummery is the honorable secretary. Funds in any amount will be gratefully acknowledged if forwarded to the Treasurers, Malcolm Morris Memorial Fund, 12 Stratford Place, London, W. L., England.

Canton Donates Tract for Medical School and Hospital.—In recognition of service rendered the municipality, the city of Canton, China, has donated a tract of 20 acres within two miles of the center of the city to the Canton Hospital, on which it is hoped to construct a modern medical school and hospital. The mayor of Canton, Sun Fo, the son of Dr. Sun Yat Sen, in presenting this land, said in part:

> Through the Canton Hospital, modern medicine was introduced into the Orient. For 88 years, the Canton Hospital has been an efficient medical institution which has treated more than two million sick and disabled people. Several hundred doctors and nurses, graduates of this school, are doing useful work and are respected members of the community. This government has knowledge in general of the plans for the construction of a new plant on the site granted by the government, with hospitals and medical and nursing schools and other necessary buildings. Those who contribute toward these will be rendering a great service to the people of South China, who have confidence in the Canton Hospital, the Chinese name of which—Pok Tsai—is a household word.

Personal.—The gold medal of the British Medical Association has been awarded to Dr. Henry B. Brackenbury for services to the association and the medical profession.——Prof. A. V. Hill of University College, London, delivered the Oliver-Sharpey lectures at the Royal College of Physicians of London, April 29 and May 1.——Dr. S. Kitasato, of the Kitasato Institute for Infectious Diseases, has been created a baron by the emperor of Japan in recognition of his services to his country. He is dean of the Medical College of Keio University, and the first physician not connected with the government to be so honored.——Dr. Wilfred Trotter delivered the annual oration of the Medical Society of London, May 5, on "Certain Minor Injuries of the Brain."——The fifth Maudsley lecture was delivered by Dr. John Carswell, commissioner of the Scottish Board of Control, on the subject of "Mental Disorders."——The city of Vienna has conferred honorary citizenship on Prof. S. Freud in token of appreciation of his contributions to science.——A tragedy by Dr. F. Wolf, a small-town practitioner in Germany, is now being played at one of the principal theaters in Dresden.——"Arthritism in Children" was the title of the interchange lecture delivered recently at Paris by Martinez Vargas, rector of the University of Barcelona, and "Pylorostenosis in Infants," the title of the lecture by Prof. E. Suñer of Madrid.

CORRECTIONS

Utah Instead of Michigan.—In an editorial in the State Board Number of THE JOURNAL, April 26, 1924, p. 1363, footnote 3, it is stated erroneously that during the last seven years the state of Michigan licensed three osteopaths as physicians and surgeons. The state intended was Utah.

Chiropractors' Certificates Refused.—THE JOURNAL, May 10, 1924, noted that the state board of education of New Jersey had announced that teachers' certificates for absence on account of illness issued by chiropractors and osteopaths would not be honored by the board. It was the Jersey City board of education which made this announcement, and not the state board.

Government Services

Hospitals Authorized

Pursuant to instructions of the Secretary of War, the organization of the following hospitals, organized reserves, has been authorized: General Hospitals No. 58 (St. Francis Hospital Unit, Hartford, Conn.), No. 100 (St. Mary and Elizabeth Hospital Unit, Louisville, Ky.), and No. 19 (The Rochester General Hospital Unit, Rochester, N. Y.); Surgical Hospitals No. 38 (Stamford Hospital Unit, Stamford, Conn.), No. 66 (Murray Hospital Unit, Butte, Mont.), and Evacuation Hospital No. 40 (University of Georgia Medical Department Unit, Augusta, Ga.).

Graduation at Army Medical School

The graduation exercises at the Army Medical Center, Washington, D. C., will take place June 6, 1924, and will include the Army Medical School, Army Veterinary School, Army Dental School and the Army School of Nursing. The Secretary of War will make the presentation of diplomas and medals. The Army Medical School class comprises thirty-seven captains, one of whom is of the Oregon National Guard, one first lieutenant, and one major of the Cuban army. The honor graduates are Capts. Philip L. Cook (Hoff medal), Albert G. Kinberger (Sternberg medal), George P. McNeill, Jr., Bernard A. McDermott, Lewis B. Bibb and Clyde C. Johnston.

Method of Computing Bonus

The director of the United States Veterans' Bureau has issued instructions which will enable World War veterans to compute the amount of paid-up twenty-year endowment insurance, purchased by the adjusted service credit under the provisions of the Adjusted Compensation Act. Attention is called to the fact that the 25 per cent. increase to be added to the adjusted service credit has already been incorporated in the factor and should not be added to the adjusted service credit before multiplying by the factor.

Factors and Instructions

Age	Factor	Age	Factor
20	2.545	43	2.439
21	2.544	44	2.426
22	2.542	45	2.413
23	2.540	46	2.398
24	2.539	47	2.381
25	2.537	48	2.364
26	2.535	49	2.345
27	2.532	50	2.324
28	2.530	51	2.302
29	2.527	52	2.279
30	2.524	53	2.254
31	2.521	54	2.228
32	2.517	55	2.201
33	2.513	56	2.172
34	2.509	57	2.143
35	2.504	58	2.113
36	2.498	59	2.082
37	2.492	60	2.050
38	2.485	61	2.018
39	2.478	62	1.986
40	2.470	63	1.954
41	2.460	64	1.921
42	2.450	65	1.889

INSTRUCTIONS

Allow $1 a day for each day of home service and $1.25 a day for each day of foreign service. Deduct $60 from this sum. Multiply the remainder by the factor opposite the age nearest birthday to date certificate is issued. The factor includes the 25 per cent. increase, and this increase should not be added to the adjusted service credit before multiplying by the factor.

EXAMPLE

Age at date of issue	33 years
Home service	180 days
Overseas service	100 days
(180 − 60) × $1.00 = $120	
100 × $1.25 = 125	
$245	Adjusted service credit
× 2.513	Factor at age 33
$615	Adjusted service certificate

Foreign Letters

PARIS

(From Our Regular Correspondent)

May 9, 1924.

Vital Statistics of France for 1923

The minister of labor has just published the vital statistics of the ninety departments of France for 1923. The showing is a little more satisfactory than that of 1922. The total number of deaths has decreased by 22,000, while the total number of living births has increased by 2,000. The number of marriages, however, has diminished by 27,000.

The statistics for the last four years and those for 1913 (which include the three departments of Alsace-Lorraine) are as follows:

Years	Population	Living Births	Deaths	Marriages
1923	39,209,518	761,861	666,990	356,501
1922	39,209,518	759,846	689,267	383,220
1921	39,209,518	813,389	696,373	456,221
1920	39,209,518	834,411	674,021	622,869
1913	41,476,272	790,355	731,441	312,036

The figures for the population in 1920-1923 are those of the last census (as of March 6, 1921), in the ninety French departments. The population for 1913 is based on the 1911 census of the former eighty-seven French departments, and on the 1910 census for the departments of Bas-Rhin, Haut-Rhin and Moselle.

The birth rate (living births) for 1923 was 19.4 per thousand inhabitants, which is lower than the rates for 1921 and 1920 (20.7 and 21.3 per thousand), but slightly higher than the rate for 1913 (19.1 per thousand).

The death rate for 1923 dropped to 17.0 per thousand, as against 17.6 in 1922 and 17.6 in 1913.

The proportion of newly married persons for 1923 decreased to 18.2 per thousand, as compared with 19.5 in 1922, 23.3 in 1921, and 31.8 in 1920; but was still considerably higher than the proportion for 1913; namely, 15.1 per thousand.

To sum up: The statistics for 1923 show a marked decrease in mortality, the death rate being the lowest ever recorded in France. The birth rate was stationary, as compared with 1922. The marriages show a progressive return to normal, after the exceptional increase that followed demobilization.

EXCESS OF BIRTHS OVER DEATHS

The year 1923 gave an excess of births over deaths of 94,871, or 2.4 per thousand population, as against 70,579, or 1.8 per thousand, in 1922; 117,023, or 3.0 per thousand, in 1921, and 159,790, or 4.1 per thousand, in 1920. The increase in the excess for 1923 as compared with that for 1922 is due almost entirely to the decrease in the number of deaths (689,267 in 1922 and 666,990 in 1923). The increase in the total number of living births was very slight: from 759,846 in 1922 to 761,861 in 1923.

While the excess of births in 1923 is higher than that of 1922, it is sensibly lower than in 1920 and 1921.

COMPARISONS WITH OTHER COUNTRIES

The demographic situation in France, while slightly better than in 1922 and in the years immediately preceding the war, is, nevertheless, not at all favorable as compared with that of other nations. In the countries that were actively involved in the World War, the excess of births over deaths decreased, it is true, during the period of the conflict, and in many countries there was even an excess of deaths over births; for example, in Belgium, from 1916-1918; in Austria, in 1918 and 1919; in Germany, in 1917-1918, and in Spain and Italy during 1918 (influenza epidemic). But the excess of deaths over births was less in these countries than in France, and, furthermore, the close of the war brought, in these countries, a marked increase in the excess of births over deaths. In 1921 and in 1922, their excess of births over deaths, considered from the standpoint of population, was from three to five times as great as the excess recorded for France.

THE CAUSES FOR A LOW BIRTH RATE

It is difficult to determine the causes that influence a low birth rate. Some affirm that industrialism exerts a stimulating effect on the birth rate, and they cite as an example the department of Pas-de-Calais, in which, in 1923, there was an excess of births over deaths of 13.0 per thousand population, and the department of Nord, in which an excess of 8.1 per thousand was recorded. But, on the contrary, the department of the Loire is industrially highly developed, and yet the number of deaths almost equaled the number of births. And the department of the Rhone has many large industries, yet the total deaths were sensibly higher than the births. Nor can the poverty of a given region be assigned as a cause. The departments of Lozère and Corse are economically among the poorest in France, and yet their population has increased considerably, whereas in the rich department of the Seine-et-Oise, there is a frank excess of deaths over births. Some have urged the unfavorable influence of urban centers, but even this is not yet demonstrated. The population is increasing, owing to an excess of births over deaths, in the departments of the Seine (Paris), and the Seine-Inférieure (Rouen and Le Havre), but is decreasing in the department of the Rhone (Lyons) and in that of the Gironde (Bordeaux), and is remaining almost stationary, with a slight excess of births, in the department of the Bouches-du-Rhône (Marseilles).

FOREIGN IMMIGRATION

In 1921, 1,550,000 immigrants (counting only manual laborers) entered France. In 1923, the number reached two million and more. In 1921, Paris and the department of the Seine counted 233,820 foreigners, 169,500 of whom were within the corporate city limits. The number has now reached 400,000. The beginning of October, 1923, 3,922 children of foreign parentage had secured admission to the public schools of Paris. These children belonged to thirty-two different nationalities. There were 1,017 children of Italian parentage, 656 of Russian descent, and 601 of Polish origin; then came Roumania, Belgium, Spain and the Levant, all of which contributed around 250 children to the school population of Paris. These figures suffice to show the importance of immigration. In view of this foreign immigration, the question is beginning to be asked seriously whether a rational assimilation of foreign elements might not constitute a remedy (at least, palliative) against depopulation. If this question is answered in the affirmative, immigration should be supervised and regulated, as the United States is doing, by refusing admission to undesirables and by favoring the entrance of selected races and individuals.

Necrology

Dr. Henri Bertin-Sans, former professor of hygiene at the Montpellier Faculty of Medicine, has died, aged 93.

The death of Dr. Henry Parent, former president of the Ophthalmologic Society of Paris, at the age of 75, has been announced.

Dr. Antony, medical inspector (with the relative rank of brigadier-general) of the reserve forces, former professor at the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce, former director of the medical service of the sixth army corps, has died at Nyons (Drôme), aged 75.

A School for Librarians

At the instance of Miss Jessie Carson, director of the library section of the American commission for the devastated regions of France, a school for librarians has been

organized in Paris. Miss Carson, in connection with her work establishing libraries in the department of the Aisne, recognized the need of creating in France a school that would aid in the recruiting of an experienced library personnel. The school is located at rue de l'Elysée, 10, the headquarters of the American Library, with which it is closely affiliated, and is under the direction of Miss Sarah C. N. Bogle, associate secretary of the Association of American Librarians, who is assisted by Miss Mary P. Parsons, associate director of the school for librarians.

LONDON

(From Our Regular Correspondent)

May 12, 1924.

New Biochemical Laboratories at Cambridge

The leading school of physiology in this country, that of Cambridge, has received a valuable addition to its resources, making possible for the first time the concentration of the main activities of the school of biochemistry within one well equipped and thoroughly up-to-date building. The laboratories have been made possible by the decision of the trustees of the will of Sir William Dunn, a London merchant who died in 1908, to devote to biochemistry the residue of the estate, which was left with instructions that it was to be used for the "alleviation of human suffering." The actual building has cost $480,000. Besides a spacious general laboratory at the top of the three-story structure, there are about twenty rooms, fully equipped on most modern lines for research. There is a large library.

Lord Balfour, as chancellor of the university, opened the Sir William Dunn Laboratories. He referred to the happy circumstance that the trustees, selected to carry out duties entirely alien to those connected with their commercial work, should have shown themselves so competent as to realize, if they were to deal with the alleviation of human suffering, they could not do better than present Cambridge University with that great educational institution. Lord Balfour asked what biochemistry could do for mankind which chemistry, especially organic chemistry, was not qualified to do already? Biochemistry had a utility all its own. If one approached the subject from the side of chemistry alone, one arrived at a number of very interesting truths, but one would not arrive so quickly or so effectively at the truths which that institution was designed to elucidate, as if one approached the subject with biologic considerations in mind. The biologist and the chemist had, no doubt, part of their field in common; but unless that part of the field which affected physiology was approached from the chemical side with a biologic basis, secrets of Nature would remain hidden and progress retarded. He believed that the attempt to organize all the forces of research in alleviating cancer was of infinite moment to their future. But, if the time was ever to come when the intimate causes of this scourge were discovered, and a flood of light thrown on the detailed facts which generations of physicians had accumulated, it would be through some discovery made by a student who was not thinking especially of cancer or any other morbid growth, but whose discovery would open up some generalization, some new way of looking at familiar facts, which would illuminate this profoundly obscure question. If that happened, they might confidently believe that it would happen in some school of biochemical research, where students had devoted themselves with a pure love of knowledge to the penetration of the secrets of Nature.

Birth Control Instruction

Mr. Wheatley, minister of health, received a deputation on birth control. The deputation, which was organized by the Hon. Mrs. Bertrand Russell's Birth Control Committee, included members of the medical profession, representatives of Dr. Stopes' Constructive Birth Control Society, the New Generation League, and Birth Control Clinics, and Mr. H. G. Wells. The deputation urged that the minister should remove the embargo on the giving of information with regard to methods of birth control at maternity centers. In their opinion it was contrary to the whole policy of the labor party to deny working women access to knowledge which was readily available to people who could afford to pay for it. They also requested that the minister should make it quite clear that physicians in the public health service were free in their public capacity to give this information when they considered it medically advisable. The minister, in reply, said that a clear distinction must be drawn between allowing access to knowledge and actually distributing knowledge. No one would seriously maintain that access to knowledge should be forbidden, but public opinion on this question was not so definite that it would allow state and rate-aided institutions to do more than direct people in need of advice as to where it should be obtainable. The decision in fact must be with parliament, and not be assumed by administrative action.

Samuel George Shattock

The death from pneumonia at an advanced age of Prof. Samuel George Shattock, F.R.C.S., F.R.S., pathologic curator of the museum of the Royal College of Surgeons, has removed from the English medical world a foremost and, in some ways, unique figure. Born in 1852, he was educated at University College and took the diploma of M.R.C.S. in 1874 and the F.R.C.S. in 1881. Almost from the first, he devoted himself to pathology. In 1876 he began, under the supervision of the late Mr. Marcus Beck, a descriptive catalogue of the specimens of surgical pathology in the museum of University College. In 1878 he began an investigation of the reparative processes in vegetable tissues, and also began to outline the attachment of muscles on a series of human bones which now is an exhibit in the museum of the Royal College of Surgeons. He was then appointed curator of the pathologic-anatomic museum of University College, and in 1884 curator of the Museum of St. Thomas' Hospital. In the following year he established a voluntary class in surgical pathology at the hospital, and in 1886 was appointed to give demonstrations on surgical pathology. In 1888 he became a lecturer on the subject, and delivered the first course of lectures on the subject given in London. In 1894 he delivered the Morton lecture on cancer at the Royal College of Surgeons, in which he reported a series of experiments, made with Sir Charles Ballance, to test the theory, then much discussed, that cancer is a microbial disease. His conclusions were stated with characteristic caution, but he pointed out certain analogies to vegetable galls. He had always given much attention to plant pathology, and in 1881 read a paper to the Linnaean Society on the reparative processes in plants, illustrated by specimens which he presented to the museum of the Royal College of Surgeons. In 1897 he was appointed pathologic curator of the museum, and began to prepare a series of cultures of pathogenic bacteria rendered permanent by formaldehyd vapor. On the lines of the hunterian tradition, he performed an immense work at the college, selecting, preparing, arranging and cataloguing specimens. His crowning work, begun with his assistant, Mr. Beadles, in 1910, was a splendid collection of specimens illustrating the principles of general pathology, which he had not completed when overtaken by death. He had a good working knowledge of Latin, and in 1900, when editor of the Transactions of the Pathological Society, introduced the practice of giving a summary in Latin of some of the contributions for the benefit of foreign readers. An indefatigable and accurate worker, his opinion was universally regarded as final on any disputed pathologic specimen. His colleague, Sir Charles Ballance, has described him as "the English Virchow." When

the American surgeons met in London in 1914, he delivered a lecture to them on the invitation of the president of the Royal College of Surgeons. He was a shy, retiring man, with no desire for notoriety, who found his reward in his work. But he had a few interests outside it, which were known only to the few who had the privilege of intimacy with him. The book he loved best was the "Imitatio Christi," by Thomas à Kempis, which he knew by heart.

BELGIUM

(From Our Regular Correspondent)

May 7, 1924.

The Brussels Medical Convention

The fourth session of the Brussels Medical Convention will be held in the Palais d'Egmont from June 29 to July 2, under the patronage of the king and queen of Belgium. Many distinguished men of science have given their support to these scientific meetings, where hundreds of practitioners gather every year.

As on the three previous occasions, the medical men of Brussels have endeavored to emphasize the practical side of the convention. The mornings will be reserved for operative and clinical demonstrations in the hospitals and the clinics. The afternoons will be taken up with lectures, communications and motion pictures (particularly numerous this year). In three days, with the aid of the Brussels departmental heads and foreign specialists, the visiting physicians will be put in possession of everything new in the therapeutics and the surgery of all the medical specialties. Among those who have thus far announced their willingness to read a paper, I may mention: Dr. Alexis Carrel, of the Rockefeller Institute of New York, who will speak at the opening session on "Tréphones cellulaires et leurs fonctions"; Professor Bordet, Prof. Marcel Labbé, Professor Pauchet, and Dr. Levaditi.

The fourth day of the session (July 2), the convention will meet at Liége, where a committee, of which Prof. Henrijean is chairman, is preparing a scientific meeting of great interest.

An international exhibition (Germany excepted) of pharmaceutic products, of displays from health resorts, of surgical instruments and operative apparatus will be held in the Palais d'Egmont for the duration of the convention.

Exophthalmic Goiter and Insulin

Dr. Goffin, speaking before the Société clinique des hôpitaux of Brussels recently, presented an interesting communication on the treatment of exophthalmic goiter with insulin. In four cases he was able to bring about a frank amelioration of the symptoms, whereas all other forms of medical therapeutics had failed. The author thinks that the good effects of insulin may be due to its action on the sympathetic system or the endocrine glands.

Smallpox Vaccination

In order that a sufficient quantity of vaccine might always be on hand to supply the needs of physicians for vaccination and revaccination against smallpox, a state bureau of vaccination was created in 1882. The bureau sets for itself the task of producing an ample quantity of animal vaccine and of placing it, at all times, in unlimited quantities, at the disposal of the municipal and communal administrations and the medical profession in general.

The vaccine was cultivated originally in calves, but since 1897 all inoculations have been made on adult bovines. The animals to be inoculated are first examined as to their state of health and are subjected to the tuberculin test. The vaccinal lymph is not used unless at necropsy the director has personally convinced himself of the sound state of the organs. Several months are allowed to elapse after its preparation before it is distributed. Since 1909, the laboratory of the public health service has made periodically a bacteriologic examination of the vaccine produced by the bureau. Since 1910, the bureau has produced a vaccine in powder form, for use on the Congo.

Physicians are requested to fill out a form and send it in to the bureau, giving information in regard to the number of vaccinations performed and the results secured. The report of the administration of public health states that, during 1921, the bureau of vaccination distributed nearly 450,000 vaccine units in Belgium and 525,000 units on the Congo.

The Menace to Society of Allowing Insane Persons Their Liberty

Several recent attacks of insane persons on alienists have awakened public consciousness to the danger of allowing insane persons to be at liberty. Dr. Crocq has been making a medicolegal study of the question and has submitted to the Société belge de médecine légale a series of proposals looking forward to the creation of measures for social protection:

1. Since every insane person is liable to commit crime, the notification of mental disease should be made compulsory. Every insane person who is kept at home should be examined by a board of expert alienists, who would decide on the disposition of the patient.

2. The director of a psychopathic hospital should not have the right to declare cured and to set at liberty patients other than those who have shown themselves harmless and have never, either previous to their commitment or during their detention in the hospital, manifested any antisocial tendency toward others or toward themselves. If the patient has shown, at any time, such tendency, the director should submit to the authorities his proposal to release the patient, but he should not be released until the board of alienists has given its approval.

3. Dismissal on probation should be subject to the same regulations.

4. Patients who have been committed should not be released by those who placed them in the institution, except on approval of the director.

5. Only professional psychiatrists should be permitted to render expert opinions, either as regards the mental examination of suspects or the question of releasing patients who have already been committed.

MADRID

(From Our Regular Correspondent)

April 1, 1924.

Second Spanish Congress on Medical Hydrology

The Spanish Congress on Medical Hydrology, which had not met for thirty-six years, held its second meeting, March 15-20. Those interested in mineral springs, physicians, chemists, other scientists and owners of establishments, attended. The president of the congress, Count Gimeno, delivered an opening address on "The Secrets of Mineral Waters," in which he reviewed recent advances in chemistry in relation to hydrology. The address was interesting, for Dr. Gimeno is at home when speaking of art, politics or medicine. There were many other important addresses and the discussions were very lively. At the last session the congress approved the establishment of a small tax on patients at spas to improve the sanitation and roads. It urged provincial and municipal authorities to furnish indigent patients with attendants and funds for treatment, and decided to ask railroad companies for rates for indigent patients and to protest against providing the Moroccan army with artificial mineral waters, as this is unscientific and harms the owners of mineral springs.

About 100 members attended the congress, and more than fifty papers were presented. It is to be regretted that the

subjects presented were so technical, for the discussions were practically limited to physicians in charge of spas. No effort was made to have some one speak on behalf of the public, which is paying enormous prices for mineral waters, and putting up with obsolete equipment and medical service at bathing resorts. This is one chief cause of the discredit of Spanish hydrology. The government created originally a permanent mineral springs medical service, but it led to abuses. Patients were compelled to call on the physician in charge on arrival and to pay 7.50 pesetas (about $1) for the call. This created among the physicians an *esprit de corps* which hampers research, as the physicians know they will be transferred eventually to larger resorts, where their income will also increase. As these physicians grew old, it was necessary to establish another corps of physicians, which were called "habilitados" (assistants). The new physicians had the same rights as the previous officeholders, and where the medical director was too old to attend patients, they took charge and gave to the older incumbent half of the collections. Small resorts were frowned on, except as stepping stones, and when the number of patients increased in a spa, the position was given to physicians who were highest on the panel. Thus there were few who were sure of their places. When finally they secured a permanent place, they were old and tired, and, with few exceptions, scientific work held no attraction. The country expected that, as the old physicians retired, their places would be taken by young men who would study the springs and, through researches, give new life to Spanish hydrology, which has an old and brilliant history. The new government has made things worse. It has added to the permanent corps of spring physicians temporary appointees, already too old to be efficient. There is therefore no hope for young physicians in the spas, nor any stimulus to perform scientific work, in spite of the fact that Spain has some of the best springs in the world.

Trouble and Honor for Cajal

The Buenos Aires Spanish Culture Institution, a society organized to further scientific research through granting awards, has granted to Ramón y Cajal its first prize this year. The money awarded included interest on funds collected in Argentina on Cajal's retirement and amounted to 32,759 pesetas (about $4,400). The University of Paris has also appointed Cajal an honorary physician.

When Cajal retired for age, a few months ago, his place was filled by the senior professor then teaching histology, who, like all other professors here, increases his income through the sale among students of his own book on histology. The result is that Cajal's textbook on histology has lost its best market among Madrid medical students. This means a large loss for Cajal, but an even greater one for the students, for Cajal's is by far the most complete treatise in Spanish. A number of Cajal's pupils protested, but were unable to give any actual grounds for their action, and Cajal's successor published a statement in medical journals which expressed astonishment at the campaign against him. He claims that, among the histologies recommended by him, Cajal's book appears on the list and his own is omitted, and that no blame should be attached to him if students prefer his book to Cajal's. It is a fact, however, that students buy the new professor's book just to flatter him, an old and well known trick. It is to be regretted that Cajal should be succeeded by a professor who, according to Cajal himself, ignored in his book the work of Cajal and his pupils, which fills forty volumes.

Pittaluga Discusses Malaria

In the National Academy of Medicine, Professor Pittaluga has given a lecture on the need of government funds to combat malaria and antimalarial legislation. He based his arguments on the death certificates in 2,000 deaths from malaria. This is a smaller number of deaths than the number in Italy, where, after a vigorous campaign for many years, the death rate reached a minimum of 4,000 a year. From available figures, Pittaluga estimates that there are 350,000 cases of malaria in Spain each year, which figure is, of course, open to criticism. A clinician called his attention to the unreliability of death certificates, since physicians often diagnose malaria in any case presenting paroxysms of fever.

The Madrid Medical School

Dr. Recasens, the dean, has discussed the organization of the Madrid Medical School in the press. There are 3,000 students in the school, which has facilities intended for only 800. Dr. Recasens believes that the number of students should not be limited, but that new buildings should be provided as soon as possible. The only pressing need is "more room"; but improvement is possible in other ways. There are too many professors and too few assistants. The assistants receive no salary, and the professors are overworked. The laboratory fees of the students are inadequate, supplies are very expensive, and the professors often furnish them out of their own pockets. A new "university city" has been planned, and construction will soon begin. We are forced, said Professor Recasens, to take America as our model. There are two universities in Chicago having parks as large as the largest in Madrid, and thus they are able to live their own life, secluded from the outside world. Yale is really a city in itself. In Boston there is even a church which belongs to the university. We must apply these methods in Spain. Dormitories and laboratories must be erected. There is no question of their inadequacy, but we must not follow Harvard and limit the number of students in accordance with laboratory facilities. Of course, the medical school would have lost many students if enrolment had been limited to those for whom laboratory facilities were available. The best equipped institution in Spain is the Madrid school, but even it needs facilities, and nothing is being done to limit enrolment. Some professors boast that they have never kept a pupil back, and their examinations have become a mere form. The anarchical condition of teaching is such that when a professor is firm, his students enroll in another university, take their examinations, and return to their own home town. In capitals of the fourth rank, there are universities having more pupils than colleges in more important cities. "Free teaching" allows students to enroll, without attending classes or laboratory, and to present themselves for examination and thus to become licensed physicians. In small town universities, examination days are practically holidays, and hotels are crowded with guests. Politics, in which the hotel owners play a part and enrolment fees which go to the local school, permit this farce to continue.

BERLIN

(From Our Regular Correspondent)

May 10, 1924.

The Present Organization of the Public Health Service of Greater Berlin

The public health service of Greater Berlin was reorganized in January, 1924, on the following basis: The chief public health office is under the direction of the city health commissioner *(Stadtmedizinalrat)*. He is assisted by a medical director, in the chief public health office, for general and personal affairs and matters concerning the general hospitals, five medical departmental directors for the chemical institute, the hygienic-bacteriologic institute, for the hospitals and institutions for the insane, for the social hygiene and for the emergency service. The director and the departmental directors are further assisted by scientific investiga-

tors. The public health office has also a legal and an industrial expert. The various districts into which Greater Berlin is divided (Charlottenburg, Schöneberg, etc.) have district public health offices, directed by municipal health officers from the head office. Subdivisions of the public health service are:

A. General care of the public health: (1) The chemical institute at the chief public health office. Its chief functions are: supervision of the milk supply, the water works and public wells, drainage, examination of foodstuffs, issuance of permits for the erection of industrial plants; (2) hygienic-bacteriologic institute: public laboratory for the examination of infectious material sent in by physicians; bacteriologic, serologic and hygienic experimentation; organized crusade against diphtheria, combating of epidemics in municipal institutions and industrial plants, training school for disinfectors; (3) schools for infant caretakers and nursing personnel; (4) supervision of midwives (enforcement of the law of July 20, 1920).

B. Prophylactic care of public health: care of expectant mothers, care of infants and of young children. There are sixty-three infant welfare centers with 168 caretaking nurses. The physicians are furnished, in part, by the chief office. The children remain usually under the supervision of the same welfare center until they are 6 years old. Medical treatment, other than dietetic, is not usually given sick children, except in hereditary syphilis. In the school health service, physicians are employed, being assisted by school nurses or school welfare workers. There are 400,000 pupils in the public schools of Berlin, and for every ten to twelve thousand pupils there is a head school medical officer, and for every three to four thousand there is an assistant school medical officer. Recently the municipal higher schools, and also the secondary and continuation schools have been included for school inspection purposes in the public school inspection system. For the dental care of school children there are seventeen dental clinics with thirty-nine school dentists and twenty-three dental nurses. For venereal disease patients there are four ambulatory clinics, and also seven welfare centers that give advice and exercise a general supervision. Provisions are made also for alcoholics, neurotics and mental cases. The consultation services are, in part, in charge of specialists. For the enforcement of the cripple welfare law of May 6, 1920, there are eight welfare centers in charge of specialists. Each center has the supervision of several municipal districts. Especial importance is attached to the combating of tuberculosis, and in this connection the main idea emphasized is that the disease must be combated as an epidemic affecting the whole people. The general welfare centers are being developed further. In Old Berlin there were no municipal welfare centers up to 1922. Now there are welfare centers at the four largest municipal hospitals. Berlin has a total of twenty-four welfare centers, with forty physicians and sixty-three nurses. From the standpoint of organized efficiency, an important step forward was taken through the creation of a merger with the provincial insurance office of Berlin.

C. Care of individual patients: In the municipal institutions there are about 12,100 beds available; 5,800 beds in psychopathic institutions, 4,300 in hospitals proper and about 2,100 beds in other institutions, among which are 660 in health centers for the tuberculous. In addition, Berlin has the legal right to demand the use of 4,000 beds for mental patients and hospital cases in the institutions of the province of Brandenburg. The general hospitals receive mainly the grave cases. The *Leichtkrankenhäuser* (hospitals for mild cases) admit such patients as do not require the use of the expensive apparatus and equipment of the general hospitals. The ambulatory clinic for patients with tuberculosis of the bones and joints, conducted jointly with the ministry of ecclesiastical affairs and public instruction *(Kultusministerium)*, fulfils a similar purpose. Employed in the municipal institutions there are about 450 physicians, 175 interns, 2,000 nurses (exclusive of the pupil nurses), 2,530 caretaking personnel, and a large number of general employees.

D. Of other subdivisions of the public health service may be mentioned: the emergency and first-aid service, with thirty-six centers distributed about the city; the ambulance service for the transportation of patients; the information bureau that keeps an up-to-the-minute record of the number of vacant beds in the various hospitals, and the public baths with twelve bath houses, some of which have modern equipment. The chief public health office collaborates also in the administration of the poor fund, and likewise in welfare work among the war injured. A year ago, for the first time, a municipal industrial physician *(Gewerbearzt)* was appointed whose duty it is to familiarize himself with labor conditions and to aid applicants in securing employment.

The Selective Effect of Food Scarcity on Aged Persons

The results of food scarcity would naturally be observed earliest and most intensely in aged persons. In the 70-75 age group, the death rate of men (according to a publication by Dr. Roesle, of the federal public health service) increased steadily from 80.2 per thousand in 1913 to 106.0 in 1917, whereas the mortality rate of women in 1915 was somewhat lower than in 1914. But by 1917 the death rate of women had risen to 90.8 from 78.8 in 1916, and in 1918 it rose to 95.2, whereas in that year the death rate of men began slowly to decline. With reference to the age group of 75-80 and beyond, the resistance of the women was broken as early as 1917, for, from then on, their mortality rate was the highest, and likewise for the men it was the highest, beginning with the age group 55-60. The greater resistance of the weaker sex was thus demonstrated in the greatest period of distress. The increased mortality was noted in the men of these groups as early as 1914, but was not observed in the women until 1916. In 1917, the maximal figure for the death rate of men was 167.0 and for women, 150.3. In the 80-85 age group, however, the increase in the mortality rate was noted in 1914, and, as was true of the men, the rate increased rapidly up to 1917. In 1917, more than 25 per cent. of the men of this age group were carried off and almost 25 per cent. of the women, as compared with a mortality of 16 per cent. in 1913. The age group of 90 and over was affected most of all; in 1919 there were in Germany only 11,318 persons belonging to that age group; among these, eighty-six over 100 years old. The average life expectancy of persons aged 90 is something over two years, but this short period was reduced by the war to a minimum. The death rate of men aged 90 rose from 1914 on, from 387 to 578 in 1917. The death rate of women aged 90 increased, during the same period, from 373 to 559. In 1917, therefore, more than half of the persons aged 90 were carried off.

Marriages

CHARLES WESLEY OLSEN, Chicago, to Miss Rhoda Francis Tolman of Emmet, Idaho, May 14.

LOUIS LEO PERKEL, Jersey City, N. J., to Miss Flora Sonia Levin of Detroit, May 4.

WILLIAM A. SIM, JR., Quincy, Ill., to Miss Jessie E. Summers of Melrose, May 7.

MICHAEL C. C. LILIENFIELD to Miss Helen Post, both of New York, recently.

OLAF ELMER SATTER to Miss Bernice N. Long, both of Chicago, May 1.

Deaths

Joseph Henry O'Connell ✙ New York; Columbia University College of Physicians and Surgeons, New York, 1898; associate professor of diseases of the ear at the New York Post-Graduate Medical School; on the staffs of the New York Post-Graduate and St. Vincent's hospitals; aged 51; died, May 19, of pneumonia.

Charles W. Gibson, Batesville, Ind.; Louisville (Ky.) Medical College, 1892; member of the Indiana State Medical Association; formerly mayor of Batesville; aged 54; died, May 14, at the Christ Hospital, Cincinnati, following an operation.

Milton Chase, Voorheesville, N. Y.; University of Michigan Medical School, Ann Arbor, 1861; Civil War veteran; formerly health officer of Otsego, Mich.; at one time member of the school board; aged 87; died, May 20, of acute pyelitis.

William Marion Pollard ✙ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1882; formerly member of the school board; at one time on the staff of the City Hospital; aged 69; died, May 25, of cerebral hemorrhage.

John A. M. Gibbs, Cairo, Ill.; Rush Medical College, Chicago, 1868; member of the Illinois State Medical Society; formerly member of the school board; aged 80; died, May 6, following a long illness.

William Collin Welch, New Haven, Conn.; Yale University School of Medicine, New Haven, 1877; member of the Connecticut State Medical Society; formerly a druggist; aged 79; died, April 13.

Marlborough Churchill Wyeth ✙ Lieutenant Colonel, U. S. Army, retired, New York; Columbia University College of Physicians and Surgeons, New York, 1878; aged 69; died, May 14.

Finis E. Wyatt, Yorkville, Tenn.; University of Nashville Medical Department, 1896; member of the Tennessee State Medical Association; aged 52; died, May 14, of pernicious anemia.

Elvin Franklin Baker, Jacksonville, Ill.; Chicago Medical College, 1867; member of the Illinois State Medical Society; member of the state board of health; aged 82; died, May 24.

Arno Klein ✙ Albuquerque, N. M.; Jefferson Medical College of Philadelphia, 1911; on the staff of St. Joseph's Sanatorium and Hospital; aged 38; died, May 9, of tuberculosis.

John Andrew Calnané ✙ St. Louis; Columbia University College of Physicians and Surgeons, New York, 1894; aged 59; died, May 12, at St. Anthony's Hospital, of pneumonia.

John Landenberger, New Prague, Minn. (licensed, Minnesota, 1883); member of the Minnesota State Medical Association; aged 74; died, May 13, of cerebral hemorrhage.

Ernest Lindwood Burnham, Sanford, Maine; Medical School of Maine, Portland, 1895; member of the Maine Medical Association; aged 59; died suddenly, May 12.

John Sharp Gillespy, Birmingham, Ala.; Miami Medical College, Cincinnati, 1883; formerly county and city physician; aged 65; died, May 8, of cerebral hemorrhage.

Marguerite E. B. Thompson ✙ Phoenix, Ariz.; Cincinnati (Ohio) College of Medicine and Surgery, 1898; formerly a practitioner in Chicago; aged 77; died, May 10.

Davis Elmore Cason, Odenville, Ala.; University of Nashville (Tenn.) Medical Department, 1870; also a druggist; Confederate veteran; aged 89; died, May 11.

Charles C. Gratiot ✙ Shullsburg, Wis.; Jefferson Medical College of Philadelphia, 1880; Civil War veteran; member of the school board; aged 76; died, May 20.

James Harris Knowles ✙ Gloucester, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1886; aged 64; died suddenly, May 5, of heart disease.

Edwin Ferdinand Winterberger, Chicago; Chicago College of Medicine and Surgery, 1909; aged 44; died suddenly, May 18, at the Mercy Hospital, Des Moines.

Henry Boyden Rowe ✙ Mount Airy, N. C.; University of Maryland School of Medicine, Baltimore, 1910; aged 39; died, May 16, following a long illness.

Rodney E. Troutman, Logansport, Ind.; Rush Medical College, Chicago, 1904; member of the Indiana State Medical Association; aged 42; died, April 22.

Alvin St. Clair Daggette ✙ Pittsburgh; Western Reserve University School of Medicine, Cleveland, 1881; aged 68; died, May 13, of pernicious anemia.

Mitchell L. Chaney, Lynchburg, Ohio; Cincinnati College of Medicine and Surgery, 1902; aged 47; died, May 8, as a result of a self-inflicted wound.

James Lane Napier, Blenheim, S. C.; Medical College of the State of South Carolina, Charleston, 1868; aged 80; died, May 13, of cerebral hemorrhage.

Arthur G. Lewis, Sadorus, Ill.; Western Reserve University School of Medicine, Cleveland, 1878; aged 76; died, May 16, of cerebral hemorrhage.

Edward A. Quinn, Cleveland, Tenn.; Vanderbilt University Medical Department, Nashville, 1890; aged 69; died, May 6, following a long illness.

William H. Oyler ✙ New York; Medical Department of the University of the City of New York, 1882; aged 66; died in May, of heart disease.

William Smith McMurdy, Brooklyn; Medical Department of Columbia College, New York, 1886; aged 69; died, May 21, of paralysis agitans.

LaFayette Bennett, Central City, Ky.; University of Tennessee College of Medicine, Memphis, 1900; aged 47; died, May 22, of meningitis.

Lilburn Merrill, Seattle; Denver (Colo.) College of Physicians and Surgeons, 1905; aged 43; was drowned, May 13, in Lake Washington.

William C. Wingfield, Shawnee, Okla.; Kentucky School of Medicine, Louisville, 1878; aged 71; died, May 11, following a long illness.

John Wesley Harris, Hollywood, Calif.; Chicago (Ill.) Homeopathic Medical College, 1888; aged 61; died, May 9, of heart disease.

John Lovell Murray ✙ Toledo, Ohio; Detroit (Mich.) College of Medicine and Surgery, 1900; aged 48; died, May 7, of pneumonia.

Ruth Mitchell Lance ✙ Kingston, Pa.; Cornell University Medical College, New York, 1910; aged 41; died, March 19, at Baltimore.

Charles Jenson, Ephraim, Utah; College of Physicians and Surgeons, Baltimore, 1898; aged 54; died, May 11, of pneumonia.

Rudolph H. Reemelin, Cincinnati; University of Würzburg, Germany, 1875; aged 69; died, May 5, at the Grand View Hospital.

Milton Fackler Sloan, Stilwell, Kan.; Louisville (Ky.) Medical College, 1876; aged 70; died, May 11, of arteriosclerosis.

Andrew Tazewell Baird, Darlington, S. C.; Memphis (Tenn.) Hospital Medical College, 1886; aged 60; died, April 24.

William E. Benton, Harpster, Ohio; Starling Medical College, Columbus, 1872; aged 77; died, May 13, at Toledo, of senility.

Lloyd S. Downs, Waco, Texas; Eclectic Medical Institute, Cincinnati, 1885; aged 67; died, May 11, following a long illness.

Edward Kirk, Philadelphia; Jefferson Medical College of Philadelphia, 1888; Civil War veteran; aged 77; died, May 16.

John Emerson Hanaler, Fonthill, Ont., Canada; University of Toronto Faculty of Medicine, 1883; aged 64; died, April 1.

Joseph D. Roberts, Terre Haute, Ind.; Indiana Eclectic Medical College, Indianapolis, 1881; aged 69; died, April 12.

Otis Gould, Oakley, Mich. (years of practice); Civil War veteran; aged 77; died, May 12, following a long illness.

Willis M. Hall, Portland, Ind.; Cleveland (Ohio) College of Physicians and Surgeons, 1893; aged 61; died, April 2.

Anna Warnecke ✙ Geneva, N. Y.; University of Buffalo Department of Medicine, 1900; aged 60; died, May 11.

Charles Egbert Richards, Pittston, Pa.; Jefferson Medical College of Philadelphia, 1887; aged 59; died, May 13.

A. L. Hendon, Holly Grove, Ala. (licensed, Alabama, 1875); aged 74; died, May 6, following a long illness.

William D. Drake ✙ Bolivar, Mo.; Missouri Medical College, St. Louis, 1898; aged 48; died, May 9.

Lorenzo D. Haynes, Erie, Kan.; Kansas City (Mo.) Medical College, 1892; aged 69; died, May 13.

Samuel G. Breeden, Decatur, Tenn. (licensed, Tennessee, 1889); aged 75; died, May 11.

✙ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

GLY-SC-IODONATE

A Nostrum Sold Under Misleading Formula and References

A few months ago the Council on Pharmacy and Chemistry published a report on an alleged bactericide "Gly-So-Iodonate." The product is put on the market by a company whose name is much more imposing than its importance warrants—the "National Medical Research Laboratories" of Milwaukee, earlier known as the "Wisconsin Medical Laboratories." The concern seems to have for its president and manager a man who sells office-filing equipment, and for its secretary and treasurer a lawyer. Its vice-president, one Charles E. Hutchings, who claims to be a "medical man," seems to have been the prime mover in putting "Gly-So-Iodonate" on the market. Hutchings, in letters, has frequently stated that he is a "graduate of King's College of Medicine, London," and has claimed, also, to be a "member of Marquette Medical College." An inquiry directed to King's College, London, brought the reply that they had no record of a man of this name on the medical register. The Marquette University, School of Medicine, Milwaukee, seems to be equally ignorant of Hutchings' connection with that institution.

The Council's report brought out the fact that "Gly-So-Iodonate," exploited to the profession as "the bactericide the medical world has searched for since the days of Lister," is given a "formula" by its exploiters which is chemically absurd. Some of the declared ingredients were obviously incompatible, while the A. M. A. Chemical Laboratory found that other ingredients were not present in the amounts claimed.

Not only have physicians been urged to use this unscientific mixture but the concern has carried on an intensive and extensive advertising campaign in an attempt to place its nostrum with industrial concerns.

After THE JOURNAL had published the Council's report and called editorial attention to the unscientific character of the claims made for the nostrum, the National Medical Research Laboratories sent broadcast a six page circular, three pages of which were devoted to what purported to be "A Partial List of Representative Industries Protecting Their Many Thousands of Employees from Infection With G-S-I." As it seemed reasonable to suppose that a concern which published a misleading formula for its product would be quite as likely to publish misleading references for the value of its product, some of the "representative industries" listed by the exploiters of G-S-I were written to. They were asked if there was any truth in the claim made by the National Medical Research Laboratories that the concern in question was really using Gly-So-Iodonate. The following abstracts of letters received in reply may prove of interest:

St. Luke's Hospital, Chicago.—The superintendent reports: "Two of our doctors did use it and, according to them, found there was no particular advantage in it." It is no longer used.

St. Mary's Hospital, Milwaukee.—This institution reports that "two years ago two doctors who are connected with an industrial plant" asked the hospital to get some G-S-I to use on patients they had in the hospital. For a year past none has been used.

Milwaukee Children's Hospital.—Reports that "Gly-So-Iodonate" was used at one time, but is no longer used.

Columbia Hospital, Milwaukee.—Reports that the hospital has never used Gly-So-Iodonate for protecting its employees, but did purchase some on request of one physician on the staff who used it on his patients.

Evangelical Deaconess Hospital, Milwaukee.—Reports that two years ago the hospital was "either given or purchased" a bottle of G-S-I but has "at no time used this preparation."

St. Joseph's Hospital, Milwaukee.—"We are not using Gly-So-Iodonate. . . . We have no desire to advocate the use of any useless preparation nor have we done so in the case of G-S-I."

Miami-Inspiration Hospital, Miami, Arizona.—Used some for a while in the dispensary "with about the same results that we would have had from any of our regular wet dressings." Since last December has never ordered any "and do not intend to do so."

University of Notre Dame, Athletic Department.—The University reports that G-S-I was used for a short time by the Director of Athletics who when he "learned that it was a hindrance to healing," ceased using it.

Allis-Chalmers Manufacturing Company, Milwaukee.—The chief surgeon writes that he has never ordered any of it nor "authorized its use" in the plant hospital. He adds that "every method of pressure" has been brought to bear on the industrial men of Milwaukee in an effort to introduce G-S-I and secure endorsements for the nostrum.

Gimbel Bros. Department Store, Milwaukee.—Reports that the preparation was used for a time but, when found to offer no advantages, was discontinued.

Burroughs Adding Machine Company, Detroit.—Used a sample experimentally and discontinued its use.

Armstrong Cork Co., Linoleum Division, Lancaster, Pa.—Ordered a pint bottle; used about half an ounce; discontinued its use.

American Cast Iron Pipe Co., Birmingham, Ala.—Used for a time but has discontinued.

American Wire Fabrics Co., Blue Island, Ill.—Ordered a quart but has discontinued its use.

Fairbanks-Morse Co., Chicago.—Has never used it. Threw away samples that were received.

Milwaukee Fire Department.—Has never heard of Gly-So-Iodonate or the concern that puts it out.

Acme Brick Co., Millsap, Texas.—Reports that a sample bottle was sent and the foreman applied the material to the cut finger of one of the men. Gly-So-Iodonate is not used in the first aid kit.

Chicago and Northwestern Railway, Chicago.—Did use for a time but has discontinued its use.

American Sheet and Tin Plate Company, Pittsburgh.—The chief surgeon writes that he knows nothing of Gly-So-Iodonate being used and that it is not used by the organization.

Federal Mutual Liability Insurance Co., Los Angeles, Cal.—Tried one free sample bottle and have never used any since.

General Motors Truck Company, Pontiac, Mich.—Gave it a trial but not being impressed with its value did not re-order.

American Rubber Co., Cambridge, Mass.—One bottle was ordered for a trial but as "nothing of special value" was found the order was not repeated.

Milwaukee Electric Railway and Light Co.—Used free samples for a time but will "certainly make no further use of this product at any time."

Acme Smelting & Refining Co., Chihuahua, Mexico.—Used a small amount but the physician "has reported that he has not obtained results."

Cudahy Packing Co., Kansas City, Kansas.—Have never ordered Gly-So-Iodonate "and do not intend to" as they "can see no benefit to be derived from the use of the preparation."

Beaver Manufacturing Co., Milwaukee, Wis.—Abandoned the use of the product because men objected to it.

Bucyrus Co., South Milwaukee.—The chief surgeon reports: "We have never used Gly-So-Iodonate at any time."

It seems evident that the basis for at least some of the references published by the exploiters of Gly-So-Iodonate rests on as flimsy a foundation as the alleged formula for the stuff and the educational claims of Charles E. Hutchings.

Correspondence

IRRADIATION AS A POSSIBLE TREATMENT OF THE DENTAL ROOT "ABSCESS"

To the Editor:—A recent observation of a possible large dental root "abscess" of the lower jaw has revealed a hitherto unobserved and apparent healing effect of roentgen-ray treatment. A white adult, aged about 40, had observed pain in the teeth in the left lower jaw—incisor, canine and bicuspid. Then the teeth became a little loose, and a swelling appeared below the teeth on the anterior surface of the lower jaw. A roentgenogram showed bone absorption about the roots of these three teeth, much larger than the usual dental root abscess, large enough to be explained by the coalescing of three dental root abscesses.

In view of the effect of roentgen rays on the giant-cell tumor, it occurred to me to try them here to see their effect on this type of granulation tissue. Whatever the primary condition was, the pain has disappeared, the teeth have become solid, and the light area has been replaced by what appears to be new bone formation, and there now remains but a small light area about the root of the canine tooth. In addition to the changes in the roentgenogram, the visible and palpable tumor below the involved teeth on the anterior surface of the body of the jaw has disappeared.

I am anxious to publish this observation, because at present the prevailing treatment of a dental root abscess is extraction of the tooth, and many teeth are being lost, because we do not know how to prevent these abscesses. Unless there is a serious heart lesion or an acute polyarthritis, a delay of a few days or weeks could do no harm, during which time the roentgen-ray treatment could be given. The result of the treatment should be checked by both roentgen-ray dental films and plates.

There is also another reason for this preliminary roentgen-ray treatment, especially when the shadow of bone absorption is larger than a five-cent piece. I have described this in the *New York State Journal of Medicine* (**24**: 379 [March 21] 1924). In brief, the results of the studies reported there show that there is no way of distinguishing, in the roentgenogram or any other method of examination, the various pathologic processes that may produce destruction of bone in the center of the lower jaw, all of which in their beginning are not unlike the dental root abscess. These are: the dentigerous cyst (a cyst lined by adamantine epithelium); the adamantine carcinoma, the giant-cell tumor, the fibroma, the sarcoma, and a possible carcinoma spinocellulare. The latter originates in the epidermis of the gum and extends down along the side of the tooth, or through the sinus of the extracted tooth, and produces an area of bone destruction in the center of the body of the jaw.

It would appear theoretically safer in all these cases when the shadow is larger than a five-cent piece, to give the area a course of roentgen-ray treatment. If it grows larger or does not entirely disappear, then it would be wiser to operate. But the usual method—extraction of the teeth—should not be followed. Under local anesthesia, the bone shell of the involved area should be exposed by dividing the mucous membrane and exposing the bone by pushing back a muco-periosteal flap. This piece of bone should be removed and the cavity and its contents inspected. One always should be prepared with the cautery. The electric cautery with a small knife or bur is of sufficient strength. The plumber's small soldering irons are cheaper and more accessible to all. If one is unable to make the diagnosis between the different pathologic processes, the cavity should be thoroughly cauterized with the red hot cautery, the teeth in the involved area extracted, and the root cavities again cauterized. Fortunately, I have had the opportunity to employ this in all the pathologic processes except the sarcoma, with apparent success. In the benign lesion, such as the dental root abscess or cyst and the dentigerous cyst, it is unnecessary, but has not interfered with healing. In the giant-cell tumor, it is essential to prevent recurrence. In sarcoma and carcinoma spinocellulare, the life of the patient undoubtedly depends on this immediate and thorough destruction of the involved area with heat.

I feel that it is important to emphasize this second part, because the majority of persons with lesions within the lower jaw are coming under observation when the palpable swelling is no larger than a five or twenty-five cent piece. The area of destruction is clearly pictured in the roentgenogram. Unfortunately, in the majority of instances the method of attack has been insufficient for the malignant lesion—either extraction of teeth only, or curetting without thermal or chemical cauterization.

It should not take long to establish the effect of roentgen-ray treatment of dental root abscesses, or the efficiency of the electric cautery or cautery with the soldering iron in the operative treatment of those central lesions of the lower jaw which do not react to preoperative irradiation.

If one can recognize the dentigerous cyst when exposed, the cautery need not be employed and the teeth can be saved. I would appreciate reports of similar observations.

Joseph Colt Bloodgood, M.D., Baltimore.

MUSCLE MURMUR

To the Editor:—Muscle murmurs seem to present to the student some little difficulty in differentiation. They are confused with fine râles, not infrequently, while one student stated that what he heard as muscle murmur he had been accustomed to regard as "cog-wheel" respiration. Other students have told me that the murmur often so dominated the field that they were unable to determine the character of the sounds that they were hearing. This whole confused subject may be cleared up by the simple means of instructing the student to auscultate over other than chest muscles. Listening over the deltoid or the biceps will give a pure muscle murmur, when the arm is flexed against resistance, or, in the case of the deltoid, raised, against resistance.

Ethan A. Gray, M.D., Chicago.

REGISTRY OF BONE SARCOMA

To the Editor:—As chairman of the Committee of the American College of Surgeons of the Registry of Bone Sarcoma, I am anxious to have every active practitioner of medicine in the United States know of the existence of the registry and the use it may be to him and the service he may be to it.

It is hoped that every case of bone sarcoma that occurs in the United States or Canada will be registered with the committee as soon as the tentative diagnosis is made. Registration consists in sending an outline of the history, roentgen-ray prints and, if tissue has been removed, some of the tissue or slides made therefrom. It is the duty of the committee to collect and study the cases reported until such time as it can render a satisfactory report of efficient methods of diagnosis and treatment. On receipt of a case for registration, the registrar sends the data received to a number of consulting pathologists, who give their diagnoses and prognosis. In due time these diagnoses are sent to the person registering the case. If he is in a hurry, a telegraphic report will be sent. Any member of the committee is also ready to give advice as to treatment, if he is asked to do so.

We desire registration of every possible case, even if the record, roentgenograms or slides are unsatisfactory. No case that is treated under this diagnosis should be omitted, for we can never tell what little fact may be of importance in solving our problem.

The other members of the committee are Dr. Joseph Colt Bloodgood, Baltimore, and Dr. James Ewing, New York City.

E. A. CODMAN, M.D., Registrar,
227 Beacon Street, Boston.

ELECTRIC FAN IN SEASONAL TREATMENT OF POLLEN HAY-FEVER AND ASTHMA

To the Editor:—Pollen filters, such as nasal filters, and wet cheese-cloth tacked on windows, are notoriously unsatisfactory. An electric fan, placed and kept running a few feet inside the open sleeping room window from which ventilation is derived, will blow practically all pollen granules back out the window. The doors and other windows of the room should, of course, be kept closed.

This little device, in my hands, has proved of immense assistance in providing comfort to these sufferers during the pollination season, especially at night in the residence sections where pollen is comparatively abundant.

I. S. KAHN, M.D., San Antonio, Texas.

ANOTHER DEATH FROM "NUGA-TONE"

To the Editor:—Noting the article on "Nuga-Tone" in the Propaganda department of THE JOURNAL, May 17, I wish to report the death of a child, 3 years old, with typical symptoms of strychnin poisoning from eating an unknown number of "Nuga-Tone" tablets.

FRANKLIN CAUTHORN, M.D., Superior, Ariz.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NONSPECIFIC PROTEIN THERAPY

To the Editor:—1. What is the supposed mechanism of action of so-called nonspecific protein therapy? 2. Has peptone, collargol or typhoid vaccine, or have autoblood serum injections been reported to have been used successfully in the treatment of chronic urticaria? If so, kindly state doses you would recommend. The case in mind has resisted the ordinary measures, and gives a positive dermal reaction to all protein mixtures.

J. E. T.

ANSWER.—1. The mechanism involved in nonspecific therapy concerns cell stimulation. Weichardt assumes that this involves all cells (omnicellular plasma activation); other researches indicate that certain cell groups, as for instance the reticulo-endothelium, may be more particularly concerned. On stimulation, the cell becomes more permeable. Antibodies, enzymes, fibrinogen, etc., leave the cell. Under certain conditions (typhoid fever), a rapid destruction of organisms may take place to an extent that may overwhelm the patient by the sudden liberation of toxic bacterial products. This first phase of the reaction corresponds in many ways to a parasympathetic effect. Later a second phase follows during which the patient is improved (euphoria). This is associated with a sympatheticotonia; the cells are evidently less permeable, and stimuli that under ordinary conditions might cause irritation are no longer effective. This stage may persist for a considerable period of time, and is clinically apparent in the improvement of the patient.

2. Few cases are reported in the literature in which chronic urticaria has been so treated, although many related conditions of evident or probable sensitization have been improved (hay-fever, asthma, migraine, epilepsy, intermittent hydrarthrosis). We would suggest great caution in the employment of the more active substances, such as typhoid vaccine, peptone and collargol; indeed, if we may judge by analogy, very small doses of relatively mild reactivity (tuberculin, casein, turpentine) are much more suitable. This has been the experience with chronic arthritis. Dosage must be adjusted to suit the patient, care being taken to keep the dose at all times just below that which causes a focal reaction at the site of the lesion.

"PERITONITIS WITH UNRUPTURED APPENDIX"

To the Editor:—In Queries and Minor Notes (THE JOURNAL, May 17, p. 1632), a correspondent asks about the possibility of an unruptured appendix causing acute peritonitis, and no one can doubt the correctness of your reply, "Generally speaking, it is possible for peritonitis to develop from appendicitis without rupture of the appendix."

Some, however, might raise the point that in such a case it would be justifiable or possibly imperative, even in the presence of acute peritonitis, to explore other regions of the abdomen. A careful history and physical examination will largely rule out pelvic, kidney and gallbladder disease; but this does not hold true, at least not invariably, in the case of ulcer.

After being jolted by one or two mistakes in misdiagnosing ruptured appendix, operating and finding the appendix unruptured, and discovering the true cause of the peritonitis to be perforated ulcer, I adopted the plan of suspecting all ruptured appendixes of being in reality perforated ulcers. If the patient was 35 or 40 years old or more, if a history of ulcer could be obtained, or a history of sour belch or heartburn, or the attack was ushered in by pain unusually severe or protracted, the operative incision was made a little high. Then, if the appendix was found unruptured, the pylorus was explored. In no instance, since the adoption of this rule, has exploration in the case of unruptured appendix with acute peritonitis failed to disclose a perforated ulcer. A larger experience would, of course, have shown one or more cases similar to M. O. B.'s, with suppurative peritonitis due to an inflamed but unruptured appendix.

If a man suspects many cases with marked rigidity and other symptoms of peritoneal involvement of being ulcer and not appendicitis, he will be wrong more frequently than right, because ruptured appendix is much more common than perforated ulcer; but he will have done no harm by making his incision a little high, because he can still drain the pelvis through a stab wound above the bladder, and he will rarely fail to find the cause of the peritonitis near the pylorus when he finds the appendix unruptured, provided, of course, that a careful physical examination and a painstakingly elicited history have eliminated other causes.

J. P. DOUGHERTY, M.D., Sioux City, Iowa.

PRECIPITATION TESTS FOR SYPHILIS

To the Editor:—In the various modifications of the precipitation test for syphilis, flocculation and then precipitation occur, in the order named. What causes the formation of the floccules, or what is the composition of the resulting precipitate? In other words, kindly explain what actually takes place in the reaction when a positive serum is used. As the reaction depends on the presence of syphilitic serum, antigen and physiologic sodium chlorid solution, why is the serum inactivated to destroy complement, when a typical reaction will occur in a positive serum not previously inactivated? In the serum of a known syphilitic patient, the reaction will be positive whether the antigen is cholesterinized or not. Why is cholesterinized antigen used?

T. A. FLOOD, M.D., Salt Lake City, Utah.

ANSWER.—According to Taoka (*Arch. Exper. Med.*, Tokyo, 1922), the precipitate in these reactions contains both the so-called antigen and the reacting substance, or reagin, or antibody. Nothing much is known concerning the chemical nature of the latter substance except that it probably is not an albumin. It is quite generally agreed that it is not necessary to inactivate serums for precipitation tests. The cholesterinized antigen is more sensitive and seems to be of value in testing serums of patients under treatment, because less actively positive serums may react with the cholesterinized antigen but not with the unmixed antigenic alcoholic extract.

CHLOROFORM BURN OE THE CORNEA

To the Editor:—A woman with Bell's palsy was being anesthetized with chloroform. As she could not close her left eye, owing to the paralysis, some of the vapor touched the conjunctiva. Later, she said that a painful corneal ulcer was caused by the chloroform burn.

Now then, although chloroform vapor may cause a temporary conjunctivitis, I do not think it would cause corneal ulceration, unless there is a tendency to ulceration present, due to defective nutrition, caused by the paralysis. Please give me your opinion in the matter.

MAX ISENBERG, M.D., New York.

ANSWER.—Chloroform will cause inflammation of the conjunctiva and also of the cornea. Traumatic keratitis may result in corneal ulcer, especially if not promptly and efficiently cared for. In most cases of Bell's palsy with imperfect closure of the lids, there is considerable irritation of the conjunctiva with changes in the corneal epithelium. A slight injury to the cornea in such a case is very apt to result in ulceration.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 8. Chairman, Dr. S. W. Welch, Montgomery.

CALIFORNIA: San Francisco, July 7-10. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

COLORADO: Denver, July 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, July 8-9. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, July 8. Sec., Homeopathic Board, Dr. Edwin C. N. Hall, 82 Grand Ave., New Haven; Sec., Eclectic Board, Dr. James E. Hair, 730 State St., New Haven.

DELAWARE: Wilmington, June 17. Sec., Medical Council, Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 8. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoneleigh Court, Washington.

FLORIDA: Ocala, June 16-17. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

GEORGIA: Atlanta and Augusta, June 4-6. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 24-27. Supt. of Regis., Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, July 8-10. Sec., Dr. William T. Gott, No. 333 State House, Indianapolis.

KANSAS: Topeka, June 17. Sec., Dr. A. S. Ross, Sabetha.

KENTUCKY: Louisville, June 9. Sec., Dr. A. T. McCormack, 532 W. Main Street, Louisville.

LOUISIANA: New Orleans, June 12-14. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 15-16. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, June 17-20. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore; Sec., Homeo. Bd., Dr. E. H. Wilsey, Chesapeake City.

MICHIGAN: Ann Arbor, June 10-12; Detroit, June 16-18. Sec., Dr. B. D. Harison, 707 Stroh Bldg., Detroit.

MISSISSIPPI: Jackson, June 17-18. Sec., Dr. W. S. Leathers, Jackson.

MISSOURI: St. Louis, June 16-19. Sec., Dr. Cortez F. Enloe, Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A Medical Schools. Parts I and II, June 19-21. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEBRASKA: Omaha, June 9-11. Supt., Dr. J. D. Case, Terminal Building, Lincoln.

NEW JERSEY: Trenton, June 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Albuquerque, July 14. Sec., Dr. W. T. Joyner, Roswell.

NORTH CAROLINA: Raleigh, June 23. Sec., Dr. Kemp P. B. Bonner, Raleigh.

NORTH DAKOTA: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 8-9. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, July 1-3. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12. Sec., Dr. George Becht, Harrisburg.

RHODE ISLAND: Providence, July 4-5. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 24. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Sioux Falls, July 15. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, June 13-14. Sec., Dr. A. B. DeLoach, 434 Madison Ave. Bldg., Memphis.

TEXAS: Austin, June 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Building, Dallas.

VERMONT: Burlington, June 25-27. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-20. Sec., Dr. J. W. Preston, 720 Anchor Building, Roanoke.

WASHINGTON: Olympia, July 8. Sec. Mr. Wm. Melville, Olympia.

WISCONSIN: Milwaukee, June 24-26. Sec., Dr. J. M. Dodd, 220 E. Second Street, Ashland.

WYOMING: Casper, June, 9-11. Sec., Dr. J. D. Shingle, Citizens Bank Bldg., Cheyenne.

Wisconsin January Examination

Dr. J. M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the written and practical examination held at Madison, Jan. 8-10, 1924. The examination covered 25 subjects and included 100 questions. An average of 75 per cent. was required to pass. Twenty-eight candidates, including three osteopaths, were examined, all of whom passed. Twenty-three candidates were licensed by reciprocity and nine by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago		(1897)	86
Rush Medical College	(1923, 5)* 87, 89, 90, 92, 92,	(1924)*	90
Harvard University		(1922)	87
University of Minnesota		(1923)†	86, 89
University of Pennsylvania		(1917) 90, (1922)	92
Washington University		(1923, 2)	89, 89
University of Virginia		(1920)	89
Marquette University	(1923)* 88,	(1923, 2) 86, 88, (1924)*	89
University of Innsbruck, Austria		(1909)‡	85
Bohemian Univ. of Prague, Czechoslovakia		(1918)‡ 90, (1923)‡	88
University of Munich, Germany		(1906) 86, (1919)‡	87
University of Budapest, Hungary		(1911)‡	87
Osteopaths			84, 86, 95§

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College		(1914)	Illinois
College of Physicians and Surgeons, Chicago		(1903)	Minnesota
Loyola University		(1921)	Illinois
Northwestern University	(1905), (1910), (1922),	(1923)	Illinois
Rush Medical College		(1923, 2)	Illinois
University of Illinois		(1920)	Illinois
State University of Iowa College of Medicine		(1916)	Iowa
Johns Hopkins University		(1920)	Maryland
Michigan College of Medicine and Surgery		(1906)	Michigan
University of Michigan Medical School		(1917) (1922)	Michigan
Harvard University		(1922)	Michigan
Washington University, St. Louis		(1915)	Missouri
Creighton Medical College		(1920)	Nebraska
Western Pennsylvania Medical College		(1898)	Penna.
Meharry Med. Coll., Nashville	(1907) Tennessee,	(1916)	Louisiana
University of Padua, Italy		(1917)	Illinois
University of Bukharest, Roumania		(1901)	Illinois

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Bennett Medical College		(1912)	U. S. Army
Indiana University		(1908)	U. S. Army
Central College of Phys. and Surgs., Indianapolis		(1902)	U. S. Army
St. Louis University		(1909)	U. S. Army
John A. Creighton Medical College		(1911), (1915)	U. S. Army
University of Oklahoma		(1916)	U. S. Army
University of Pennsylvania		(1917)	U. S. Army
Medical College of Virginia		(1901)	U. S. Army

* These candidates have completed their medical course and will receive their M.D. degrees on completion of a year's internship in a hospital.

† These candidates have completed their medical course and received their M.B. degrees. They will receive their M.D. degrees on completion of a year's internship in a hospital.

‡ Graduation not verified.

§ Also licensed to practice surgery.

Book Notices

THE 1923 BOWMAN LECTURE. Concerning Certain Ocular Aspects of Pituitary Body Disorders, Mainly Exclusive of the Usual Central and Peripheral Hemianopic Field Defects. By G. E. de Schweinitz. From the Transactions of the Ophthalmological Society. Volume XLIII, 1923. London: Adlard & Son & West.

The 1922 and 1923 Bowman Lectures have set so high a standard that coming generations will have to exert themselves not to fall below. The American ophthalmologist is particularly interested in the latter lecture, not only because of the interest that disorders of the pituitary body arouse, but even more for reason of the honor extended to American ophthalmology by the selection of Dr. George E. de Schweinitz to deliver the Bowman Lecture, the highest honor in the ophthalmic world. The lecture itself must needs be read, for a limited review cannot even touch on the salient features. The written matter is full of charm. Apart from the purely literary quality of the pamphlet must be considered the scientific value. New light is thrown on the ophthalmic manifestations that may result from disorders of the pituitary body, partially from the anatomic studies carried out with J. Parsons Schaeffer, partially from the purely ophthalmic studies carried out by the author with his associates and assistants, and partially from experimental work on animals. There are many colored anatomic drawings of unusual excellence, and even more visual field charts, filled in so that they may be comprehended at a glance. A thorough study of this lecture is recommended to every physician whose work bears even a remote relation to pituitary body disorders; in other words, to all graduate physicians.

DIE EXTRAPYRAMIDALEN ERKRANKUNGEN. Mit besonderer Berücksichtigung der pathologischen Anatomie und Histologie und der Pathophysiologie der Bewegungsstörungen. Von Privatdozent Dr. A. Jakob, Leiter des anatomischen Laboratoriums der Staatskrankenanstalt und Psychiatr. Universitätsklinik Hamburg-Friedrichsberg. Paper. Price, $7.20. Pp. 419, with 167 illustrations. Berlin: Julius Springer, 1923.

Since Nissl and Alzheimer passed away, Jakob of Hamburg and Spielmeyer of Munich have been the leading neuropathologists in Germany. The present book, the thirty-seventh of the excellent series of neuropsychiatric monographs edited by Foerster and Wilmanns, is dedicated to the memory of Alzheimer, once the teacher of Jakob. Those interested in neuropathology will here find a difficult subject treated by a master. The bulk of the book is taken up by

detailed histologic description and analysis of the author's own material. The abundant illustrations, though not colored, are nevertheless excellent. The basal ganglions and their diseases, chorea, parkinsonism, Wilson's disease and athetosis form the main subject.

OBSTETRICAL NURSING. A Manual For Nurses and Students and Practitioners of Medicine. By Charles Sumner Bacon, Ph.B., M.D., Professor of Obstetrics in the University of Illinois. Second edition. Cloth. Price, $2.75. Pp. 340, with 125 illustrations. Philadelphia: Lea & Febiger, 1924.

The author has set for himself an interesting problem. His preface indicates that he wishes his textbook to serve the nurses of low standard schools and at the same time supply all the needs of class A hospitals, and, further, to present this material in such a manner that medical undergraduates and practitioners will be concerned to learn what duties their nurses should and do perform. To accomplish such a feat, an author must take obstetric science in its highest form, and simplify, condense and define its elaborate technic so lucidly and directly as to appeal immediately to the untrained mind. He must at the same time attract and hold the older student who has been drilled and developed in the intricacies of modern biology. The principles and practice of the ancient art must be distilled and sublimed until only the essential values are prominent. When a book thus composed reaches the student, it is not surprising if it passes into the comprehension of high and low, and if each student receives a full measure of instruction with only a mysterious sense of having traveled pleasantly.

CHILDREN'S DISEASES FOR NURSES. By William Palmer Lucas, A.B., M.D., LL.D., Professor of Pediatrics, University of California Medical School. Cloth. Price, $3.50. Pp. 574, with 155 illustrations. New York: The Macmillan Company, 1923.

This is a practical work written in two parts, the first devoted to the period of infancy and the second to childhood. The first part embraces a practical introduction of the differences between the child and the adult; the prenatal and postpartum care of the mother; the first care and necessary early observations of the infant; the hygiene of infancy; breast and artificial feeding; the common disturbances of infancy, and the chronic conditions dependent on congenital weakness and nutritional disorders. The second part is devoted to the growth and development of the child, dealing with its needs in health and sickness. The book is well written, in a comprehensive style.

PEDIATRICS. By Various Authors. Edited by Isaac A. Abt, Professor of Diseases of Children, Northwestern University Medical School. Volume 3. Cloth. Price, $10. Pp. 1051, with 223 illustrations. Philadelphia: W. B. Saunders Company, 1924.

The first two volumes of this monumental contribution to American medical science offered a foretaste of the comprehensiveness and accuracy of the entire work. The third volume, now available, may be said certainly to equal the first and second volumes, and perhaps in the carefulness of its editing and the comprehensive character of the contributions, even to surpass them. The volume begins with a statement as to the "nem" system of nutrition by its originator, Dr. Pirquet. Regardless of the ultimate place to be occupied by this system in the history of infant feeding, it is well to have a brief authoritative statement directly from the source. The second article is by the lamented May Michael, whose untimely death ended a great service to scientific pediatrics. Her chapter on the physiology of the gastro-intestinal tract represents a concise briefing of a vast amount of pediatric literature. The bacteriology of the intestinal tract is discussed by Dr. Arthur I. Kendall, and the diseases of the mouth and tongue by Dr. Thomas B. Cooley. Dr. James S. Stone of Boston contributes a notable chapter on harelip and cleft palate, and Dr. B. G. DeVries on orthodontia. This series will give the pediatrician the most recent views regarding the prevention of mouth defects, which have come to be recognized as of great importance in the control of many disturbances affecting the child. The cervical lymph glands are discussed by Dr. Daniel N. Eisendrath, the salivary glands by Dr. Henry Dietrich, and the diseases of the nose and throat by Dr. Harold M. Hays. Last, comes one of the most notable contributions to the series, namely, the section on nutritional disturbances of infancy, to which Drs. Abt, Grulee and Marriott contribute three important chapters. Another section of the present volume is an extensive consideration of the surgery of the gastro-intestinal tract in children, by Dr. Harry M. Richter. This section is almost of book proportions, including approximately a hundred pages of exceedingly practical material. The remainder of the volume comprises articles by Dr. Langley Porter on diseases of the liver and pancreas; by Dr. L. W. Dean on diseases of the nose; by Dr. A. H. Byfield on infections of the upper respiratory tract; by William Scheppegrell on diseases of the larynx; an unusual chapter by Dr. Stanton A. Friedberg on the removal of foreign bodies from the lungs and gastro-intestinal tract, written just before his death. Finally, the respiratory diseases and pneumonia are considered by Drs. John A. Foote, Robert A. Cooke and Edward A. Morgan. The printing, composition, index and illustrations are well up to the high standard of the previous volumes.

LA BRONCHO-PNEUMONIE DU NOURRISSON. Etude physio-pathologique et thérapeutique. Par le Docteur Jean Meyer, interne des hôpitaux. Paper. Pp. 189. Paris, Amédée Legrand, 1923.

This is a long monograph on bronchopneumonia in the infant. The author has gone rather extensively into the question of loss of water through the skin, and takes up the clinical question from the standpoint of two syndromes, one of asphyxia and the other of a septic-toxemic state. The monograph ends with suggestions on treatment.

Medicolegal

Breach of Contract by Plastic Surgeon

(Bailey v. Harmon (Colo.), 222 Pac. R. 393)

The Supreme Court of Colorado says that it was alleged in the plantiff's complaint that she employed defendant Bailey, a plastic and cosmetic surgeon, to straighten and raise the point of her nose; enlarge her nostrils; fill out hollows; correct, eradicate and remove all defects and irregularities in her nose; raise her left eyebrow; remove, eradicate and correct all scars, blemishes, irregularities, defects, lines, circles, marks and wrinkles in her face, neck and hands; to give her "a general beauty treatment," correcting all disfiguring distortions of all kinds, and to make of her "a model of harmonious perfection." All that, it was alleged, the defendant promised to do "without pain, inflammation, soreness or inconvenience to the plaintiff, and without leaving any scars resulting from the operation," for which the plaintiff paid him $190; but that the defendant breached the contract to the plaintiff's injury, for which she asked compensating damages. A jury rendered a verdict in her favor for $600, and judgment for that amount is affirmed.

The trial court was clearly right in its ruling to the effect that the action was solely one for breach of a special contract "guaranteeing" successful treatment, and not for malpractice or negligence. It was true that in the summons and in the complaint there was a statement pointing to the defendant's negligence and unskilfulness and lack of knowledge of his alleged profession; but, in view of the averment in the complaint of the special contract and its breach, these other statements might be, and should be, and were by the trial court disregarded as surplusage, or treated as having been inserted merely as throwing some light on the defendant's failure to do the things he agreed to do, and in the way promised.

Disclaiming special knowledge of the plastic and cosmetic art, and with no opportunity to inspect the person on whose body were performed the various operations required and performed by the defendant, it would seem, nevertheless, safe to say that the "beauty doctor" took on himself a formidable job. For a reviewing court to set aside the verdict of the jury, whose members, as well as the trial judge who approved the verdict, saw the witnesses on the stand, including the

plaintiff, where the verdict necessarily depends in a measure on an inspection of the disfigured party, would be unwarranted. In the state of the imperfect record in this case the supreme court might safely assume that the jury not only did, but was so instructed by the court to, use a magnifying glass in inspecting the parts of the plaintiff's anatomy on which the doctor practiced, or failed to practice, his skill with a view to removing and eradicating the blemishes and wrinkles and scars, to filling the hollows, lowering the projections, and raising the eyebrows; in short, to determine whether or not the defendant, by his operation on the plaintiff, made of her, as promised, "a model of harmonious perfection," and to compare her as thus seen with her photograph taken before treatment, so that they would thereby be the better qualified to determine on the attending success thereof. The supreme court, with its limited knowledge and facilities, and lack of opportunity for inspection and observation that the jury had, declines to supervise or set aside the findings of the jury, which the trial judge approved.

Statements Not Privileged—As to Staff Physicians

(Garrett v. City of Butte (Mont.), 221 Pac. R. 537)

The Supreme Court of Montana, in reversing a judgment for damages that was rendered in favor of the plaintiff for injuries alleged to have been sustained by her falling on an accumulation of ice and snow on the sidewalk at a certain place, holds that it was error to exclude as a privileged communication the testimony of a staff physician at the hospital to which the plaintiff was taken, it being desired to show by him that she told him that the accident occurred at a different place from that alleged by her.

The court says that to invoke the rule of exclusion under the Montana statute, two things are required to appear: (1) That the relation of physician and patient existed at the time the statements were made; (2) that the information given the physician was "necessary to enable him to prescribe or act for the patient." The statute is unambiguous, and plainly applies only to information, relating to the particular injury or disease, required properly to "prescribe for the patient." The provisions of the statute alone settle the question. In view of the language employed, it would not seem that any lawyer would be heard seriously to argue that statements made by a patient to his physician concerning his place of residence, his place of birth, the names of his parents, whether he is married or single, the place where injured, the means of his conveyance to the hospital for treatment, or the like, constituted information necessary to enable the physician to prescribe for the patient. It is manifest that, were such the rule, commonplace conversations had by the patient with his physician would come under the rule of exclusion.

This court recognizes the general rule that the incompetence of a physician to testify concerning information acquired while attending a person in a professional capacity extends to staff physicians connected with a hospital; but the information obtained in order to place such evidence under the ban as respects the physician or an attendant physician must be such as is necessary to prescribe for the patient.

Roentgenograms—May Be Taken into Jury Room

(Robinson v. Payne (N. J.), 122 Atl. R. 882)

The Court of Errors and Appeals of New Jersey, in affirming a judgment for the plaintiff for damages for personal injuries, says that the defendant contended that there was error in admitting in evidence certain roentgenographic plates and films, and in allowing them to be taken into the jury room. But the court holds that if the correctness of roentgenographic photographs is established by the testimony of the person making them, or if they are identified by the surgeon under whose general direction and for whose use they were made, and by whom they were used in his diagnosis of the bodily injury, they are admissible in evidence and may properly be taken into the jury room. Tested by this rule, the plates and films in question were properly admitted in evidence and were properly allowed to be taken into the jury room.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Chicago, June 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association of Industrial Physicians and Surgeons, Chicago, June 9-10. Dr. A. G. Cranch, National Carbon Co., Cleveland, Sec'y.
American Proctologic Society, New York, June 23-25. Dr. Joseph F. Montague, 540 Park Avenue, New York, Secretary.
American Radium Society, Chicago, June 9-10. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.
American Society of Tropical Medicine, Chicago, June 9-10. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Secretary.
Associated Anesthetists of the United States and Canada, Chicago, June 9-10. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.
Maine Medical Association, Portland, June 25-27. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.
Medical Library Association, Chicago, June 9-10. Dr. John Ruhräh, 11 East Chase St., Baltimore, Secretary.
Medical Women's National Association, Chicago, June 9-10. Dr. J. W. Fisher, Middlesex Hospital, Middletown, Conn., Secretary.
New Hampshire Medical Society, Manchester, June 24-25. Dr. D. E. Sullivan, 7 N. State Street, Concord, Secretary.
Pacific Northwest Medical Association, Vancouver, B. C., June 26-28. Dr. F. Epplen, 422 Paulsen Building, Spokane, Wash., Secretary.
Utah State Medical Association, Logan, June 19-21. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.
Wyoming State Medical Society, Cody, June 17-19. Dr. Earl Whedon, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Ninth Annual Meeting, held in Atlantic City, N. J., May 6 and 7, 1924

(Concluded from page 1810)

Clinical Studies in Addison's Disease

DR. L. G. ROWNTREE, Rochester, Minn.: In the last four years we have had twenty-one cases of Addison's disease. Four patients received no treatment and died within a month; five received some form of organotherapy; twelve received full treatment and died despite the treatment; five showed very good results. Two recent cases cannot be fully reported on. We do not feel that influenza can be excluded from causal relationship. There was tuberculosis in eight cases. Syphilis, malaria, typhoid fever, trauma and pregnancy, also played a part. Renal function showed very slow excretion of water. The blood plasma fell within normal limits. The blood does not flow readily. Lymphocytosis was a common occurrence. Liver function seemed to be normal. The basal metabolism was studied in thirteen cases, and eight were within normal limits; four were below normal. The breathing was very slow, with heavy sighing. The patient complained of cramps after taking suprarenal preparations, so the most recent method is to give preparations of the suprarenal cortex, which does not cause cramps to any extent. Pigmentation is usually increased in patients who do not improve under treatment. The treatment can combat functional insufficiency only of the suprarenal glands, but the treatment probably exerts no influence on the fundamental underlying factors; but results warrant giving the method a fair trial. The results of treatment depend on the patient's tolerance. In some instances an actual intolerance exists. In the shocklike crises we have given shock treatment first. Some patients can take 5 minims, some can take 20; the hypodermic administration causes less cramps than the oral method.

DISCUSSION

DR. N. M. KEITH, Rochester, Minn.: In wound shock one of the striking features noted was that there was a slatelike coloration. We have been able to demonstrate no diminution in the circulating blood. The blood sugar is slightly increased. In animals with the suprarenals removed the blood sugar goes down. This explains the low blood sugar in Addison's disease.

DR. ALEXANDER LAMBERT, New York: I saw a patient in a collapse of this kind. He was practically pulseless. The edema of the legs below the knees was extraordinary. The necropsy disclosed two hemorrhages, one in each suprarenal gland which had entirely destroyed it. This lesion occurred after four days of influenza. The muscles of the legs had a

most peculiar feeling, soft, like putty. One could push the fingers right into the muscle.

The Progress of the Food Through the Bowel

DR. WALTER C. ALVAREZ, San Francisco: Most of the symptoms of indigestion are due to disturbance of the progress of the food through the bowel. The rhythmic contractions of the bowel mix the food and churn it, while every now and then there is a peristaltic rush, usually starting with a large gastric contraction, but sometimes without. Most waves start with the esophagus. Sometimes contractions occur which act as inhibitions. The food is thrown back and forth; then a rush occurs. This is stopped by contractions that occur in the colon; and this prevents diarrhea. Sometimes the bowel makes an effort to stop the rush but does not succeed, and the bolus travels on. Sometimes contraction in the ileum will produce a ripple above and a rush downward. Sometimes there is a reverse peristalsis with vomiting reflex. Liquid may seep through the bowel without peristalsis; thus, liquid food may pass where solids will not. In cases in which there is inflammation or any interference with the bowel, solid food cannot be handled.

DISCUSSION

DR. W. B. CANNON, Boston: The persistence of the peristaltic rush in the anesthetized animal I have seen only in the upper part of the small intestine, where food can be pushed through the loop shortly after it emerges from the stomach. There it was spread along the intestine, where it was carried off by the activity of the intestinal wall. I think that the rush in the jejunum is pushed through on that account.

Congenital Fixation of the Duodenum

DR. WALTER L. NILES, New York: I have seen 190 cases; in thirty-nine, operation was performed. I think that many well defined cases of gastro-intestinal symptoms are due to this factor. Many poorly nourished, constipated children, said to have had acidosis, suffer from these bands. The symptoms are of two types: (1) associated with epigastric pain, and (2) toxic, with indigestion and flatulence. The attacks of pain are not so severe as those of gallbladder origin. The toxic cases are often called neurasthenia. The neurasthenic picture overshadows the toxic element. Two hours after food there is heaviness and distress, but no distress with an empty stomach. Heavy meals, emotional strain and physical strain aggravate the symptoms. Most of the patients are constipated and show tenderness in the gallbladder region. The diagnosis depends on the roentgen ray. The stomach is found to be pulled to the right and of fishhook shape, and the duodenum is high and fixed and does not move with manipulation. The duodenum is drawn to the right, with relative angulation. Gastric retention is not shown; some patients have hyperperistalsis. The duodenum is held up at the level of the second lumbar vertebra. It is not necessary to operate in all cases; many respond to medical treatment. We advise operation in young persons who are sustaining increasing disability and who would go on to gastric neurasthenia. The operation is very simple; after separation of the band, the duodenum will mobilize itself.

Value of Iron in Anemia

DR. C. S. WILLIAMSON, Chicago: Differences between animals on an iron-free diet, and the controls with iron in the diet, at the end of four months were negligible. The liver spleen and bone marrow of these animals hold reserve iron, which cannot be exhausted by bleeding. There is no evidence that iron is converted into hemoglobin.

DISCUSSION

DR. TORALD SOLLMANN, Cleveland: Dr. Williamson did not get to the point that he was aiming at. Normal animals recover hemoglobin in the time of the observations, and giving iron on the top of that does not show more than the normal amount. I think that the experimental animals should not recover normally. There should be a depreciation of the reserve iron.

DR. ALEXANDER LAMBERT, New York: These experiments do not follow the natural sequence of events. If one takes an infection with hemolytic streptococci, one can get an immediate destruction of the hemoglobin, as it is destroyed in illness. Most experiments with drugs are dealt with on the basis of normal subjects, and the results are not comparable to those obtained with sick persons.

SYMPOSIUM ON DIABETES

Epidemiology of Diabetes

DRS. HAVEN EMERSON and J. H. LARIMORE, New York: There is no way of proving that deaths from diabetes are more accurately recognized now than during the last sixty years. I think that there is likely to be an understatement of deaths. But increase in deaths does not mean increase in the incidence of the disease. There was an increase in the death rate from diabetes between 1886 and 1893. Study of causes of death shows that there has been considerable shift in the leading causes of death. Diabetes deaths were 2.8 per thousand and are now 16.1 per thousand, an increase of 493 per cent. This brings diabetes up to eighth on the list as regards frequent causes of death. In 1923, 1.4 per cent. of all deaths were due to diabetes. This is an increase of 900 per cent. since 1866. It has been claimed that prohibition has indirectly caused a rise in diabetes, owing to increased sugar consumption, but there was a rise in the diabetic death rate before prohibition. The main drop in death rate, comparing all causes, has been in that from infectious disease. The present death rate for diabetes becomes 2.5 per cent. of all deaths from all causes. The diabetic death rate under 20 years is increased moderately, but from 20 to 40 it is greatly increased, and enormously increased after 45. In 1866, the male group exceeded the female, but the female figures have steadily grown in number until in 1923 there is a tremendous increase in females, especially in the later age groups. The percentage of diabetic deaths has also shifted to an older age group; in 1875, 42 per cent. of diabetic deaths were in persons under 20; now the younger persons number 23 per cent..

Changes in the Diabetic Clientele

DR. E. P. JOSLIN, Boston: A new race of diabetic patients has come on the scene. The duration of life in 1923 is 5.6 years longer than in 1921. The diabetic patient used to die at 41; now he lives till 52. The increasing morbidity of diabetes has reached its maximum. There is no increase noted in the number of children coming for treatment. The cases seen are of the older and milder type of the disease. The steadily increasing number of doubtful types proves that the round-up in New York and Boston is about accomplished. This will not last long, for every child saved from diphtheria and every young adult saved from tuberculosis is a candidate for diabetes. The disease is fifteen times as frequent over 40. We deal more and more with the old. With increasing longevity, diabetes is more common; and in New York and Boston, one fiftieth of the death rate is diabetic. It is fifteen times as common among adults and twenty times as common among the fat; it is much more common among Jews; especially common among females. Thus, elderly, obese, Jewish women should make a point of trying to escape diabetes and to prevent it among their relatives. Also, Jewish physicians and preachers should strive to remove this stigma from their race. The reason that the Jew has more diabetes is not that he is a Jew, but that he is a fat Jew. There is a tendency among Jews to obesity; 84 per cent. of them are overweight. In the first two decades of life there is little diabetes among Jews, but it greatly exceeds in the fourth and fifth decades. In New York, three tenths of the population is Jewish, and the diabetic death rate is consequently high.

DISCUSSION

DR. C. L. MINOR, Asheville, N. C.: Listening to Dr. Emerson, I was wondering whether he was justified in taking New York City as an example of the increase in diabetes from 1885 to 1895. It is the city of highest tension of living, and also with the highest percentage of Jewish population. If Dr. Emerson were to take, as examples, such cities as Birmingham, Ala., or Memphis, Tenn., where the well-to-do population is purely Anglo-Saxon and where the extreme nervous tension of New York does not exist, I think that he might get different statistics.

Dr. Haven Emerson, New York: The reason I chose New York City as an example was that it is the only place in which there is sufficient care and intelligence shown in recording causes of death so that such figures will be of any statistical use. There is no state or city whether with colored, Jewish, or purely Anglo-Saxon population that does not show increase in diabetic deaths. That is the main point. I believe that it is a matter of an overluxurious habit of life, a combination of injudicious feeding with inadequate exercise. Of three million Jews in America, one million are in New York, which, of course, gives a rise in rate, in accordance with the increase in the Jewish element. The relationship of diabetes to age is plain. New Hampshire has the highest diabetic mortality and also the highest population over 45 years of age. I think there is some evidence in this study that this disease is a manifestation in the overfat of a disturbance of function which was not intended to adapt itself to such an enormous carbohydrate element as that many people are accustomed to use. It is about 500 years since sugar, as such, commenced to be generally used. We are now using 103 pounds, as against 35 pounds formerly used per capita.

Dr. E. S. Kilgore, San Francisco: I believe that a chart showing the amount of automobile distribution in the past decade would correspond closely with the geographic distribution of diabetes.

Dr. E. P. Joslin, Boston: If we take the census years 1900, 1910, and 1920, and plot the age groups by five year periods, we find that the rate goes up for fifteen years and then drops, and then again later it goes up between 45 and 55. Thus, there is a rise in two periods when there is the greatest rapid growth and the greatest rapid decline of function. In regard to sugar consumption and the relation to diabetes: I would say that formerly there were a great many more apples eaten, and a large apple contains about 45 grams sugar. Today the average consumption of sugar is about 100 gm. a day, so that I do not believe we are getting much more sugar than formerly.

Heredity in Hypertension

Dr. J. P. O'Hare, Boston: In examining these cases we find a very strong hereditary element. In one family of nine members there was the following history of diverse circulatory disturbance: The mother had chronic nephritis with hypertension; the father had arteriosclerosis; other members suffered coronary infarct, angina pectoris, myocardial failure and vasomotor instability. It was also found that in the families of cardiac patients there were other members showing vascular disease. We analyzed 300 patients with permanent hypertension, and in 204 cases there was a family history of disease in the patient's family. In my records there is 76 per cent. familial incidence in vascular disease cases. From two to nine relatives show heart, cerebral or kidney disease. We then analyzed a control series of 436 cases of nonvascular disease, and found in this group a percentage of 37 per cent. contrasted with 68 per cent. in the vascular patients. We found that a family history is twice as common in hypertension patients as in other patients. One point was noticeable in the early history of these cases: There was frequent vasomotor and emotional instability: migraine, nosebleed, irritability, nervousness, cyanosed hands, all part of the hypertension diathesis, and commonly shown in the second decade of life. These symptoms were presented in 50 per cent. of the hypertensive patients, as compared with 23 per cent. of controls. It is believed, therefore, that these early signs of vasomotor instability are a warning to physicians and friends of these hypertensive subjects to protect them from stress and strain, which play an important part in the production of hypertension.

The Relation of Growth Activity to the Pathogenicity of Streptococci and Pneumococci

Dr. A. O. Bloomfield, Baltimore: Experiments in which streptococci, staphylococci and Friedländer's bacillus were introduced into the upper air passages were negative. The bacteria were eliminated within twenty-four hours. We then tried to find out what factors break down the protective mechanism so that pathogenic organisms can gain ground. We believe that this depends on the state of vegetative activity of the bacteria. When introduced in a high state of activity, they produce disease. We found that bacteria present four growth periods: (1) a latent period; (2) the logarithmic period of rapid and uniform growth; (3) a stationary period when multiplication appears; (4) a period of decline when organisms die. We then inoculated mice intraperitoneally with hemolytic streptococci: (1) in the active period and (2) in the period of decline. The actual number of viable organisms were measured. For hemolytic streptococci 5 hours old, the minimal lethal dose for mice was 1½ millions; the same germs 24 hours old required 26 millions; at 36 hours old, 102 millions were needed. The relation between an active young culture and the same culture older is 1:200 as regards virulence. The same results were obtained in injections into mice with young and old cultures of pneumococci. The conclusions are, therefore, that invasive power and pathogenicity are less in old than in young cultures. Whether this is due to growth activity or to injury to the bacteria from cultural products, we do not know. We believe that organisms in carriers are not in a very active vegetative stage.

Our Present Knowledge of Rickettsia in Nature and in Relationship to Disease

Dr. S. B. Wolbach, Boston: These organisms are very minute, difficult to stain and of intracellular habitat. They are found in insect-borne diseases, such as Rocky Mountain spotted fever and typhus. Seventeen of these organisms are found in *Arachnida* or ticklike insects. So far *Rickettsia* are found in forty insects, some causing plant disease and a few possibly, causing disease in man. Many insects harbor symbiotic organisms besides *Rickettsia*. In the bedbug the *Rickettsia* is inside a mycetome, or organoid structure, that holds it. The louse and the *Culex* mosquito have similar organisms, which have lost the cell membrane and inhabit a mycetome. Doubt has been expressed as to whether these organisms can cause disease; but certain workers (Weigel and Arkwright) have succeeded in infecting lice, by rectum, with typhus virus and causing *Rickettsia*-like bodies in the insects. We have achieved the same results in Rocky Mountain spotted fever. The organisms cannot be cultivated. They cannot be separated in the insect and the mammalian host from the virus producing the disease in typhus and Rocky Mountain fever. We should identify these organisms with this type of disease.

Prevention of Constitutional Reactions in Desensitization Therapy

Dr. Walter A. Baetjer, Baltimore: Constitutional reactions are not benign; they are disagreeable and sometimes dangerous. Such reactions may be cardiac or abdominal symptoms, nausea and collapse. By comparatively simple means it has been possible to control severe manifestations. We begin the course of desensitization with a small amount in high dilution, with the faintest possible trace of protein. We have to observe caution in three types of patients: (1) those with marked idiosyncrasy; (2) those with severe asthmatic attacks, and (3) the plethoric, obese type with bull neck. We grade the dose according to local reaction produced at the last injection. If this is marked, we should be careful about increasing the next dose. If we treat the patient with gradually increasing dilutions, the local reaction becomes more intense. We must either reduce the dose or lengthen the interval. The patients should be instructed to report any initial sensations, such as malaise or nausea. If this is noted, the next dose is lessened until tolerance is gained. We have made use of epinephrin to slow absorption and thus to minimize reactions. In our work from 1917 to 1919 we had 5.8 per cent. disagreeable reactions. We have brought this figure down to 2.8 per cent. Another precaution is in changing dilutions. Jumping from low to high dilution, increasing the dosage, causes reactions; and changing from old to new preparations causes reactions. We have made the unit dose 0.1 c.c. of 1:50,000, then going to 1:40,000, and so on, titrating down the dilutions, and making each dilution at the time of injection. This tends to bring reactions down to the minimum.

Current Medical Literature

AMERICAN

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*Gastric Secretion and the "Alkaline Tide" in Urine. R. S. Hubbard, S. A. Munford and E. G. Allen, Clifton Springs, N. Y.—p. 207.

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Spontaneous Rhythmic Contraction of Muscles of Bronchial Tubes and Air Sacs of Chick Embryo. M. R. Lewis, Baltimore.—p. 385.

*Effect of Prolonged Fasting Followed by Realimentation of Gastric Secretion. M. M. Kunde, Chicago.—p. 389.

*Biologic Food Tests. VI. Vitamin A and B Content of Citrus Fruit Products. A. F. Morgan and M. S. Chaney, Berkeley, Calif.—p. 397.

Awakening of Copulatory Ability in Male Albino Rat. C. P. Stone, Stanford University, Calif.—p. 407.

Insulin Found in Tissues Other Than the Pancreas.—In view of results obtained by various investigators, Best et al. believe that insulin may prove to be a constituent of every cell in which carbohydrate is metabolized, and the islands of Langerhans to be specially developed structures to supply the active material when the demand for it is too great to be met by the insulin producing power of the individual cell. The amounts of insulin found in tissues other than the pancreas, and the presence of insulin in diabetic tissues as long as eight weeks after the removal of the pancreas support this hypothesis. The experiments reported in this paper show that insulin is present in the tissues of a diabetic dog. This insulin may either be present in a comparatively inactive form in the diabetic tissues or some condition may exist in these tissues which inhibits the action of the insulin.

Gastric Secretion and "Alkaline Tide" in Urine.—The evidence obtained from experiments made by Hubbard et al. which show an absence of the alkaline tide in cases with failure of the stomach to secrete hydrochloric acid; from the presence of two alkaline tides in most of the subjects investigated; from the absence of the morning tide when no nourishment was taken into the stomach; from the resemblance between the intensity of the tides following different types of breakfast and the reported effect of similar diets on gastric secretion, seems to the authors to indicate that the secretion of hydrochloric acid by the stomach is an important, if not the most important, factor in producing these variations in the acidity of the urine.

Methods of Extracting Insulin.—Three distinct methods of treating the pancreas of slaughter-house animals with aqueous solutions for extraction of insulin are described by Clough, Allen and Murlin, namely, perfusion, percolation and simple extraction. In agreement with earlier preliminary results on the comparison of the three methods, the yield of crude insulin in the first filtrate is greatest after perfusion, next greatest after percolation and least after simple extraction. This depends on a difference in the kind and amount of protein extracted from the pancreas cells. By reextraction of the first precipitate after perfusion and simple extraction, but not after percolation as here carried out, it is possible to increase the yield of crude insulin enormously.

Circulatory Responses to Gastric Disturbances.—Dmitrenko asserts that inflation of the stomach and mechanical, chemical and electrical irritation of the gastric serosa are followed by definite cardiovascular and respiratory symptoms; the heart rate is accelerated, the arterial blood pressure is raised and the respiration is increased in both rate and amplitude. These reflexes arise in the gastric musculature and are mediated chiefly, but not wholly, by the sympathetic fibers.

Theory of Secretion of Urine.—Observations made by Bieter and Hirschfelder of the frog's kidney by Richards' method showed that phenolsulphonephthalein and sodium sulphindigotate are excreted through the frog's glomeruli and can be seen in the capsular fluid. They do not appear in the glomeruli or the tubules when the circulation through the glomeruli has been cut off, though the tubular blood supply is intact, and hence, they are not excreted by the tubules. So far as can be concluded from studies on the frog's kidney, the phenolsulphonephthalein test of renal function is a test of pure glomerular function and not of tubular function. The dyes are markedly concentrated within the lumina of the tubules. These experiments are said to furnish the first absolutely objective proof that has as yet been advanced for the theory that the urine is excreted in dilute form in the glomeruli and concentrated in the tubules by the reabsorption of water which occurs at least in the descending loops of Henle.

Effect of Sleep on Patellar Tendon Reflex.—It was observed by Tuttle that as a laboratory subject fell asleep the patellar tendon reflex gradually decreased, finally disappearing. Whenever the subject was sufficiently awake to readjust his posture, the reflex returned, the degree of return depending on the degree of wakefulness. When the sleep was interfered with by some external cause the reflex returned at once. When the awakening was spontaneous the reflex gradually returned to normal. There appears to be some degree of correlation between the reflex and the depth of sleep.

Effect of Hunger on Gastric Secretion.—Kunde found that intense hunger seems to exert an inhibitory influence on the psychic secretions. There is no increase in the continuous gastric secretion of dogs during twenty-seven days of fasting. The gastric secretion during twenty-seven days of fasting at no time increased in amount or acidity above the secretion of the empty stomach under normal conditions. There is a slight increase in the continuous secretion during realimentation after fasting, but a marked increase in the secretion following feeding. This may persist for from four to six weeks after breaking the fast.

Vitamin Content of Grapefruit.—Grapefruit juice, fresh and concentrated, was found by Morgan and Chaney to furnish very small amounts of vitamin A. Pressed grapefruit oil and the ether extract of grapefruit peel were ineffective under like conditions. Lemon juice likewise seemed to be of little value as a source of vitamin A. The ether extract of lemon peel was found to exert a small but definite curative effect on vitamin A deficiency. The striking contrast afforded by the high vitamin A content of orange juice, peel and oil,

with the low content of the corresponding parts of the lemon and grapefruit is offered as an example of the futility of attempting to predict vitamin values from botanical or chemical relations. A more orderly relation between character of liprochromes in these fruits and their vitamin A content is postulated. The value as sources of vitamins A and B of samples of commercial and home-made orange and lemon marmalades and candied orange peels was found to differ considerably, the home-made products showing a considerably higher value in all cases than did the commercial products. This is apparently an illustration of the possibility of controlling vitamin destruction by modification of certain cooking processes in favor of shorter periods and lower temperatures.

American Journal of Public Health, Albany, N. Y.

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Nutrition in School Program. L. Lombard, Boston.—p. 394.
Chemical Changes Occurring in Sprinkling Filter. F. L. Campbell and W. Rudolfs.—p. 398.
Housing Problems in Philadelphia. G. H. Shaw, Philadelphia.—p. 401.
Incidence, Mortality and Fatality of Diphtheria. W. J. V. Deacon, Lansing, Mich.—p. 404.
Rôle of Hydrogen Ion Concentration in Action of Dyes on Bacteria. E. W. Stearn and A. E. Stearn, Columbia, Mo.—p. 409.
Blood Culture in Public Health Work. A. H. Straus and L. C. Bird, Richmond, Va.—p. 413.

Annals of Medical History, New York

6: 1-142 (March) 1924

Multiple Personality of Guy Patin. J. W. Courtney, Boston.—p. 1.
Anders Adolf Retzius (1796-1860). O. Larsell, Portland, Ore.—p. 16.
De Venenis of Petrus Abbonus. H. M. Brown, Milwaukee.—p. 25.
Descriptive Outline of History of Medicine from Earliest Days to 600 B. C. J. F. Ballard, Boston.—p. 53.
Conflict of Medicine with Quackery. W. R. Steiner, Hartford, Conn.—p. 60.
Elisha Kent Kane (1820-1857). W. M. Kerr, U. S. Navy.—p. 71.
Symbolism of Gold Headed Cane. I. H. Coriat, Boston.—p. 126.

Archives of Dermatology and Syphilology, Chicago

9: 547-674 (May) 1924

Glossitis Rhombica Mediana. J. E. Lane, New Haven, Conn.—p. 547.
Scleroderma with Special Reference to Blood Chemistry. Report of Case. S. Gitlow and S. Steiner, New York.—p. 549.
*Blood in Common Diseases of Skin. H. P. Towle and J. H. Swartz, Boston.—p. 554.
Quantitative Complement Fixation Test in Syphilis. R. A. Kilduffe, Los Angeles.—p. 571.
*Coccidioidal Granuloma: Report of Case. D. J. Davis, Chicago.—p. 577.
*Extensive Copper Sulphate Necrosis: Report of Case. H. N. Cole, Cleveland.—p. 589.
Psoriasis of Mucous Membrane of Lips. M. Scheer, New York.—p. 594.
Two Cases: Angio-Elephantiasis (Virchow); Onychauxis. C. A. Simpson, Washington, D. C.—p. 599.
Successful Desensitization and Treatment of Poison Ivy and Poison Oak Poisoning. F. Lee Bivings, Thiels, N. Y.—p. 602.
*Complement Fixation Test for Syphilis; Use of Patient's Blood Dried on Filter Paper. O. D. Chapman, Syracuse, N. Y.—p. 607.
Comparative Studies on Kahn Precipitation Test and Wassermann Test. O. Ishii, New York.—p. 612.
Two Methods of Washing Eczematous Hands. A. L. Glaze, Birmingham, Ala.—p. 621.

Blood in Common Skin Diseases.—Towle and Swartz made a study of the blood in twelve cases of pemphigus, fourteen cases of dermatitis herpatiformis, seven cases of dermatitis exfoliativa, twenty cases of erythema multiforme, twenty-five cases of impetigo, ten cases of scabies, twenty-three cases of psoriasis, twenty-eight cases of eczema and twenty-five cases of lupus vulgaris. The discussion of the findings is on the basis that diseases which show similar disturbances in the blood must be due to agents which also possess similarities.

Coccidioidal Granuloma.—A case of coccidioidal granuloma of twelve years' duration, originating in Southern California, is described by Davis. Amputation of both feet has been performed in an attempt to control the infection. Active lesions on both arms still exist. The older lesions tend to heal, with considerable scarring, while new lesions appear in other parts of the body. There is no evidence of visceral involvement. In the extremities the infection involves the skin, muscle, ligaments, fascia and bone. From the character and distribution of the lesions blood dissemination is suspected. Smears and cultures from lesions are constantly positive for *Coccidioides immitis*. Agglutination tests were negative. Complement fixation was obtained, using a concentrated culture as antigen.

Copper Sulphate Necrosis.—Cole reports the case of a man who sustained a considerable necrosis of the external genitalia and surrounding region from the free application of a solution of copper sulphate. This self medication was for a sore on the penis. Cole urges that there should be more stringent laws regulating the sale of dangerous drugs and caustics. In this case, if the patient had been forced to obtain his copper sulphate on a physician's prescription, his trouble would never have existed.

Complement Fixation Test with Dried Blood.—Chapman reports on a series of investigations made to determine whether the patient's blood could be collected on filter paper, dried and used in the complement fixation test for syphilis. The results were favorable. Apparently such blood specimens can be kept for at least one month with little deterioration of complement fixing power. The method is simple and, if satisfactory, has advantages over the present technic of blood collection. Further work is being conducted in order to determine the reliability of this method.

Archives of Ophthalmology, New Rochelle, N. Y.

53: 205-305 (May) 1924

*Endocrine Origin of Primary Glaucoma. J. Imre, Jr., Budapest.—p. 205.
Cyclectomy for Glaucoma. F. H. Verhoeff, Boston.—p. 228.
*Tonic Effect of Sympathetic on Ocular Blood Vessels. F. H. Adler, E. M. Landis and C. L. Jackson, Philadelphia.—p. 239.
*Unusual Dermoid Cyst. H. S. Gradle and J. C. Stein, Chicago.—p. 254.
Nodular Iritis Due to Bacillus of Hansen. Slitlamp Studies. L. C. Peter, Philadelphia.—p. 258.
Ocular Sporotrichosis: Case. S. R. Gifford, Omaha.—p. 264.
Visibility of Actual Blood Stream with Ordinary Loupe. T. H. Butler, Birmingham, England.—p. 267.
Allergic Reaction of Eyelids. E. M. Blake, New Haven, Conn.—p. 272.
Operation for Cross-Eye Where Glasses Correct Deformity: Four Cases. J. A. Kearney, New York.—p. 274.
Case of Encapsulated Angioma of Orbit. W. G. M. Byers, Montreal.—p. 280.

Endocrine Origin of Glaucoma.—In twenty-seven out of thirty-one cases seen by Imre, the close connection between endocrine disturbances and glaucoma was made highly probable. Examination gave, in several cases, strong evidence of an abnormal state of the endocrine system.

Vascular Hypertension Increases Intra-Ocular Pressure.—Adler et al. show that when the blood pressure is raised the intra-ocular pressure is increased. This increase, however, is kept in check by a local vasoconstriction of the ocular blood vessels through the cervical sympathetic. This mechanism is a protective one to the eye, and prevents sudden changes in general blood pressure from causing harmful changes in intra-ocular pressure. This protective action is increasingly effective as the blood pressure ascends. No effect on intra-ocular pressure is seen when the cervical sympathetic is cut at normal blood pressure. In the normal animal, as the blood pressure is raised, the intra-ocular pressure rises in direct proportion to it.

Dermoid of Eyelid.—The tumor in Gradle and Stein's case was situated in the right upper eyelid. It was removed. Microscopic examination revealed a wall with essentially the structure of external skin, a substratum of connective tissue supporting an epithelial lining like that of the external skin, with some sebaceous and sweat glands. There was no evidence of malignancy.

California and Western Medicine, San Francisco

22: 191-248 (May) 1924

*Fractures of Spinal Column. E. W. Cleary, San Francisco.—p. 191.
Deep Roentgen-Ray Therapy. J. P. Kerby, Salt Lake City.—p. 201.
Treatment of Chronic Recurrent Pyelitis. F. Farman, Los Angeles.—p. 203.
Transposition of Abdominal Viscera from Hydrothorax. A. W. Meyer, Stanford University, Calif.—p. 205.
Esophageal Diverticula. J. H. Shephard, San Jose, Calif.—p. 208.
Clinical Aspects of Rickets in Southern California. R. E. Ramsay, Los Angeles.—p. 211.

Correction of External Nasal Deformities. J. P. de River, San Francisco.—p. 214.
Influence of Pillow Habits on Development of Upper Jaw. H. Stallard, San Diego.—p. 216.
Toxic Dermatoses. O. V. Schroeter, Los Angeles.—p. 220.
Skin Syphilis Associated with Inflammatory Skin Diseases. K. P. Frost, Los Angeles.—p. 223.
Coccidioidal Granuloma in Southern California. R. W. Hammack and J. M. Lacey, Los Angeles.—p. 224.
Kidney and Ureter Calculi. J. C. Negley, Los Angeles.—p. 227.

Fractures of Spinal Column.—Twenty-five of the fifty-two cases of spinal fracture reported by Cleary were the results of falls from a height ranging from six to seventy feet. Relatively short falls were responsible for some of the severe fractures. Eighteen injuries were caused by heavy masses falling on the patient and crushing him forward. Several of these resulted in so-called "jack-knifing" of the patient, that is to say, forcing the spine into such acute flexion as to cause it to buckle. Four patients were struck on the shoulders or upper part of the back by heavy objects in such a way that the impact, rather than the weight of the mass, caused the injury. In four instances, low lumbar fractures were associated with heavy lifting and twisting strains. Four patients gave clear histories of previous injuries, at least three of which were old undiagnosed fractures, more or less completely recovered from, and discovered when a recent more trivial injury attracted attention to the region of previous fracture. Less then 30 per cent. were correctly diagnosed early. The treatment is discussed. Originality is claimed for the operation in which paired grafts are inserted across the zygapophysial articulations after splitting of the articulating facets. Adequate fusion operation is said to shorten convalescence and give a higher degree of recovery than conservative treatment in the average patient. Cleary is of the opinion that the Hibbs operation is, on the whole, more efficient than the Albee graft fusion. Carefully directed physiotherapy is an essential part of treatment.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 289-318 (May) 1924

Vincent's Disease; Report of Twenty-Seven Cases. T. A. Neal, Orlando.—p. 292.
Treatment of Heart Disease. M. Mallory, Orlando.—p. 294.
Model Constitution and By-Laws for Medical Staff of Hospitals. J. S. Helms, Tampa.—p. 298.

Journal of Biological Chemistry, Baltimore

59: 529-945 (April) 1924

*Nuclein Metabolism. II. Isolation of Nucleotide from Human Blood. H. Jackson, Jr., Boston.—p. 529.
*Effect of Ether Added in Vitro on Carbon Dioxid and Chlorid Distribution Between Cells and Serum. J. H. Austin and H. C. Gram, Philadelphia.—p. 535.
*Fatty Acids of Blood Plasma. II. Distribution of Unsaturated Acids. W. R. Bloor, Rochester, N. Y.—p. 543.
Studies on Metabolism of Sulphur. R. M. Hill and H. B. Lewis, Urbana, Ill.
VII. Oxidation of Sulphur Compounds Related to Cystine in Animal Organism.—p. 557.
VIII. Behavior of Thiophenol and Thiocresol in Animal Organism.—p. 569.
Amino Acids in Nutrition. VIII. Proline is Indispensable for Growth. B. Sure, Fayetteville, Ark.—p. 577.
*Diet in Relation to Reproduction and Rearing of Young. L. T. Anderegg, Ames, Iowa.—p. 587.
Chemistry of Jaffé's Reaction for Creatinin. Red Tautomer of Creatinin Picrate. I. Greenwald and J. Gross, New York.—p. 601.
Rubidium and Cesium Creatinin Picrates. I. Greenwald and J. Gross, New York.—p. 613.
Analysis of Gases of Air Bladder of California Singing Fish. C. W. Greene, Pacific Grove, Calif.—p. 615.
Studies on Bile Salt Metabolism. F. S. Smyth and G. H. Whipple, Rochester, N. Y.
*I. Influence of Chloroform and Phosphorus on Bile Fistula Dogs.—p. 623.
*II. Proteose and Roentgen-Ray Intoxication. Thyroid and Thyroxin.—p. 637.
*III. Gelatin, Fish, Yeast, Cod Liver and Meat Extracts.—p. 647.
*IV. Negative Influence of Drugs, Atropin, Pilocarpin, Phlorizin, Quinin, etc.—p. 655.
Influence of Sulphur-Containing Amino-Acid (Mueller) on Activity of Pancreatic Amylase. M. L. Caldwell, New York.—p. 661.
Estimation of Organic Phosphorus. E. J. Baumann, New York.—p. 667.
Synthesis of Amino Acids in Animal Organism. III. Synthesis of Cystine in Dog. J. A. Muldoon, G. J. Shiple and C. P. Sherwin, New York.—p. 675.
*Participation of Inorganic Substances in Carbohydrate Metabolism. G. A. Harrop, Jr., and A. M. Benedict, New York.—p. 683.
*Variations in Acid-Base Balance of Blood in Disease. V. C. Myers and L. E. Booher, New York.—p. 699.
Strophanthin. IV. Anhydrostrophanthidin and Dianhydrostrophanthin. W. A. Jacobs and A. M. Collins, New York.—p. 713.
*Depletion of Vitamin C in Liver of Guinea-Pig in Scorbutic Ration. H. T. Parsons and M. S. Reynolds, Madison, Wis.—p. 731.
Studies on Absorption, Distribution and Elimination of Ethyl Ether. H. W. Haggard, New Haven, Conn.
*I. Amount of Ether Absorbed in Relation to Concentration Inhaled and Its Fate in Body.—p. 737.
*II. Analysis of Mechanism of Absorption and Elimination of Ethyl Ether.—p. 753.
*III. Relation of Concentration of Ether in Central Nervous System to Concentration in Arterial Blood, and Buffer Action of Body.—p. 771.
IV. Anesthetic Tension of Ether and Physiologic Response to Various Concentrations.—p. 783.
V. Importance of Volume of Breathing During Induction and Termination of Ether Anesthesia.—p. 795.
Studies on Proteinogenous Amines. K. K. Koessler and M. T. Hanke, Chicago.
*XVI. Excretion of Imidazoles in Urine Under Normal and Pathologic Conditions; in Nephritis.—p. 803.
XVII. Faculty of Normal Intestinal Bacteria to Form Toxic Amines.—p. 835.
XVIII. Production of Histamin, Tyramin and Phenol in Laboratory Mediums by Intestinal Micro-Organisms.—p. 855.
XIX. Factors Involved in Production of Phenol by Colon Group.—p. 867.
XX. Histamin in Mammalian Organism.—p. 879.
XXI. Intestinal Absorption and Detoxication of Histamin in Mammalian Organism.—p. 889.
Synthesis of Normal Fatty Acids from Stearic Acid to Hexacosanic Acid. P. A. Levene and F. A. Taylor, New York.—p. 905.

Nucleotid in Normal Blood.—What appears to be a pentose nucleotid has been isolated from human blood by Jackson, and its physical properties, elementary composition and decomposition products have been studied. This substance is believed to be adenin nucleotid combined with or mixed with an equal quantity of a pyrimidin nucleotid.

Effect of Addition of Ether to Blood.—Austin and Gram found that the addition of ether to blood in vitro, in a concentration comparable with that present in the blood of a fully anesthetized animal causes no change in the carbon dioxid or chlorid content of cells or serum, nor in the p_H, nor in the cell volume when the blood is equilibrated at a given carbon dioxid tension.

Rôle of Cholesterol in Fat Metabolism.—The inference that the unsaturated acids are mainly transported from the liver to the tissues as cholesterol esters and that cholesterol, therefore, takes an active part in the metabolism of the fatty acids, Bloor finds difficult to accept because of the chemical inertness of the cholesterol esters. Nevertheless, the data presented give further support to the growing belief that cholesterol must be seriously reckoned with in the consideration of fat metabolism. The cholesterol esters of blood plasma consist not only of palmitate and oleate as shown by Hürthle, but also of a large proportion of the esters of the more unsaturated acids.

Diet in Relation to Reproduction.—Anderegg's experiments have shown that normal growth and reproduction result when whole milk powder is the only source of protein and vitamins in the diet. In order to obtain optimum results in nutrition, the proportions of fat, protein and salts must be within certain limits. The proportion of protein in the diet has a marked influence on the well-being of the suckling, although the first generation may grow at the normal rate. The data presented show that it is unnecessary to assume the existence of a new vitamin for reproduction.

Seat of Bile Production.—Smyth and Whipple furnish data on experiments made to determine the seat of bile production. Small doses of chloroform give more evidence that the bile salts are produced by the liver cell and not elsewhere in the body. As chloroform acts strongly on the cell nucleus, it is suggested that the bile salt activity of the liver cell may be largely under the control of its nucleus. Phosphorus in small doses may have no effect on the bile salt output or it may even have a stimulating influence. In large doses phosphorus depressant effect on bile salt output in fistula bile.

Modification of Bile Production.—Smyth and Whipple assert that proteose intoxication is associated with a fall in

bile salt output in fistula dogs in spite of the well known increase in body protein catabolism. It is probable that this reaction is an indication of real injury done the liver cell by the proteose. In this respect proteose intoxication resembles phosphorus poisoning. Roentgen-ray exposure over the liver (one-third minimum lethal dose) does not usually modify the bile salt output, but 200 ma. minutes or more given over the liver may be expected to cause some decrease in bile salt output. This indicates a slight or moderate injury of the hepatic epithelium by the roentgen rays even though lethal dosages give no evidence of histologic injury of live epithelium. Thyroid extract and thyroxin given in sufficient dosages to cause an increase in the urinary nitrogen do not modify appreciably the bile salt output.

Increasing and Decreasing Bile Production.—Gelatin feeding, in contrast to meat feeding, does not increase the bile salt output. Salmon muscle, like beef muscle, feeding causes a marked increase in the bile salt output in fistula bile. Commercial beef extract has no influence on bile salt output in fistula bile. Likewise, watery extracts of meat and liver, as well as alcoholic extracts of meat and liver, made in the laboratory were inert. Yeast and cod liver oil feeding shows a suggestive inhibitory reaction which Smyth and Whipple cannot explain.

Influence of Drugs on Bile Production.—Atropin and pilocarpin have no influence on bile salt output in bile fistula dogs. Phlorizin and quinin are negative. Calomel, hydrochloric acid, sodium salicylate and alcohol have no constant influence on output of bile salt in fistula bile.

Carbohydrate Metabolism Studies.—The results of Harrop and Benedict's experiments indicate a shift in the mobile phosphate stores of the body during the process of active carbohydrate assimilation. There is a lessened phosphate excretion in the urine during this period, with tissue phosphate retention, which latter phosphate is later again released. One site of phosphate retention is shown to be in the muscle tissues, which are also one of the chief sites of carbohydrate storage. All the data presented are consistent with the assumption that in the storage of carbohydrate as glycogen, the intermediary aid of inorganic phosphates is required. This aid would appear to be, at least to a considerable degree, temporary in nature, because at the end of the active stage of carbohydrate anabolism, the retained phosphate is again released. The shift of phosphates following insulin injection is shown to be a constant phenomenon.

Acid-Base Balance in Blood Diseases.—Myers and Booher assert that, contrary to the opinion formerly held, patients may live for a comparatively long period with low p_H values. The data reported are in harmony with the conception of the variations in the acid-base balance of the blood advanced by Van Slyke.

Vitamin C in Liver.—From the results presented by Parsons and Reynolds it is seen that in the liver of the normal guinea-pig, vitamin C is found in abundance; and that in the liver of the guinea-pig fed a diet lacking in this factor, vitamin C becomes strikingly depleted.

Studies on Ether Absorption.—The laws governing the concentration of ether in air and its distribution between air and blood are discussed by Haggard. A modification of the method of ether analysis for use in the presence of acetone is given. In no instance was acetone found in the expired air of animals to which ether was administered. Ether which is absorbed into the body is in no way altered or changed. It is eliminated largely through the expired air (87 per cent.), also through the urine, probably through perspiration, and to some extent from any exposed serous surface. The ether concentration of the urine is virtually that of the arterial blood passing through the kidneys at the moment of secretion. The ether concentration of the urine voided after a period of ether administration is a composite of the various levels of arterial ether and of the varying rate of the urinary secretion. The urine collected between catheterizations and in a plateau of the anesthesia has an ether content equal to that of the arterial blood during the same period. Under conditions of full saturation, the content in arterial blood, multiplied by the body weight, is an index of the total ether absorbed. The mixed venous blood drawn from the right heart serves at all times as an index of the total amount of ether in the body.

Ether Absorption and Elimination.—A mathematical analysis of the mechanism of ether absorption and elimination is presented by Haggard. A full experimental foundation for the use of carbon dioxid in connection with rapid induction and elimination of ether is laid.

Anesthetic Action of Ether.—It is shown experimentally by Haggard that the ether concentration reached in the central nervous system, not that in the body as a whole, is the determining factor in the anesthetic action of ether. The different types of apnea under ether are explained.

Excretion of Imidazols in Urine.—A survey made by Koessler and Hanke of the imidazol excretion in thirty-two cases of nephritis of different types suggests that, in general, the excretion of imidazols is inversely proportional to the severity of the disease. The greater the involvement of the kidney parenchyma the greater the quantity of imidazols retained in the body, or the smaller the quantity of imidazols excreted in the urine. The urinary excretion of imidazols usually proceeds parallel with the excretion of the other nitrogenous catabolites. In the majority of cases in which the concentration of the other nitrogenous catabolites in the blood is increased, the concentration of imidazols in the urine is correspondingly decreased. A comparison of the imidazol excretion with the phenolsulphonephthalein excretion generally also reveals a certain parallelism. Thus the severest degrees of disturbance in the renal function as measured by the phthalein excretion correspond to the ones in which the imidazol excretion was impaired to the greatest degree.

Journal of Industrial Hygiene, Boston

6: 1-44 (May) 1924

Industrial Aspects of Heart Disease. M. Lincoln, Boston.—p. 1.
Laundry Trade. II. Psychologic Test. M. Smith, London.—p. 14.
Determination of Factor of Katathermometer. T. C. Angus, London.—p. 20.
Hygiene of Pulp and Paper Industry. F. G. Pedley.—p. 28.

Journal of Infectious Diseases, Chicago

34: 433-548 (May) 1924

*Lens Precipitins. Antigenic Properties of Alpha and Beta Crystallins. L. Hektoen and K. Schulhof, Chicago.—p. 433.
*Precipitin Reaction of Bence-Jones Protein. L. Hektoen and W. H. Welker, Chicago.—p. 440.
Immunologic Significance of Vitamins. IV. Influence of Lack of Vitamin C on Resistance of Guinea-Pig to Bacterial Infection, on Production of Specific Agglutinins and on Opsonic Activity. C. H. Werkman, V. E. Nelson and E. I. Fulmer, Ames, Iowa.—p. 447.
*Pneumonia Death Rate and Types of Pneumococci in Norway. T. Thjötta and Ö. Hanneborg, Christiania, Norway.—p. 454.
*Studies of Intestinal Bacteriology. I. A. Goldman, New York.—p. 459.
*Id. II. Effect of Special Feeding on Intestinal Flora. A. Goldman, New York.—p. 502.
*Id. III. Study of Nonhemolytic Streptococci from Human Intestinal Tract. A. Goldman, New York.—p. 509.
*I. Determination of Heat Resistance of Bacterial Spores. J. R. Esty and C. C. Williams, Washington, D. C.—p. 516.
Identification of Monilia Psilosis. L. E. Hines, Chicago.—p. 529.
Experimental Studies on Bacteriophage. I. N. Asheshov, Dubrovnik, Jugoslavia.—p. 536.

Lens Precipitins.—Hektoen and Schulhof assert that the constituents of the lens called alpha and beta crystallins may be obtained in such form that they are precipitinogenically wholly distinct from each other, but each seems to be practically identical in the different mammalian lenses examined by them. Their presence in the lens of various species, including certain fishes, explains, at least in part, the organ specificness of lens precipitins. In other words, the lens of different species always contains the same two chemically and antigenically distinct proteins. When previously under the antigenic influence of lens of other species, rabbits may produce lens precipitins on injection of rabbit lens. Normal rabbits may react with precipitin formation to injection of rabbit crystallins. As illustrated by the menhaden fish lens may have antigenic elements in common with the mammalian lens, but it also contains larger amounts of other antigenic constituents that seem to be of a more limited specificness.

Precipitin Reaction of Bence-Jones Protein. — Precipitin tests made by Hektoen and Welker of urine and serum from cases of myeloma, aided by specific absorption methods, indicate that Bence-Jones protein is distinct and different from normal blood proteins. On precipitation with ammonium sulphate, the Bence-Jones protein in the urine of a myeloma patient was not obtained in pure form, being mixed especially with pseudoglobulin, but after crystallization by Hofmeister's method for preparing crystallized egg albumin, traces only of pseudoglobulin and albumin were retained in solutions of the crystals, and on injection of rabbits these solutions called forth specific Bence-Jones precipitins in large quantities. The difference in chemical behavior of the Bence-Jones protein under discussion and of that studied by Krauss suggests that immunologic varieties of this protein depend on recognizable chemical differences.

Pneumococcus Types in Norway.—The different types of pneumococci appear to occur in about the same relative proportion in Norway as in the United States. The death rate from typical lobar pneumonia appears to be less in Norway than in the United States.

Bacterial Flora of Intestine. — The object of Goldman's investigation was to ascertain the variations of the bacterial flora, aerobic and anaerobic, in respect to numbers and to species, at certain levels of the small intestine, in health and disease. The number of viable bacteria in the intestinal contents of four normal persons and twenty hospital patients varied within wide limits. The number of viable bacteria in the intestinal contents of patients confined to a light meat-free diet usually appeared to be considerably higher in those ill with gastro-intestinal disturbances or with diseases associated with metabolic disturbances or with focal infections of possible gastro-intestinal origin than in patients with diseases apparently unconnected with the alimentary tract. The flora, in normal and pathologic cases, was usually of mixed bacterial character, forms with widely varying metabolic requirements multiplying in the same specimen. Even when the intestinal contents were entirely dominated by one bacterial species, further analysis into cultural and biochemical properties revealed the presence of two or more varieties. Several specimens from the same person taken under similar conditions usually showed approximate correspondence in bacterial numbers and in the predominant species. Gram-negative bacilli of the colon group, gamma type streptococci, and gram-positive bacilli of the acidophilus group appeared to be a normal feature at the levels studied. Spore-bearing aerobes, accompanied by proteolytic activity, appeared to be a normal feature of the intestinal contents. Anaerobes were absent in four normal specimens but were found in many specimens from pathologic subjects, but not necessarily in all specimens from the same person. Large numbers of spore-bearing aerobes were not as common as in specimens from normal persons. The presence in considerable numbers of spore-bearing aerobes in normal subjects was attributed to the presence of meat in the diet.

Effect of Feeding on Intestinal Flora.—The strain of *Bacillus acidophilus* fed in large quantities to one patient could not be implanted in the intestine. Lactose feeding was more effective in increasing the number of *B. acidophilus*. It seemed most effective, however, in increasing the number of streptococci. Large numbers of viable *B. acidophilus* introduced directly into the small intestine were rapidly eliminated. After a diet sterile except for a broth culture of *B. acidophilus* the intestinal content at a depth of 75 inches was almost sterile, sterptococci being the only recoverable organisms in a few tubes of liquid medium. It is suggested that streptococci may represent the indigenous bacterial flora of this person at the level tested.

Nonhemolytic Streptococci from Intestinal Tract. — The same strain of nonhemolytic streptococcus, identified by agglutinin absorption methods, was twice recovered by Goldman from the intestinal contents of one patient at an interval of two months. The persistence of this strain may indicate a well adapted flora, native to the intestinal tract of the person from whom the strain was at intervals disseminated. Normal human serum appears to contain a high antibody content of group agglutinins for some nonautogenous streptococci from the small intestine.

Heat Resistance of Spores.—A new method for determining the thermal death points of heat resistant spores is described by Esty and Williams. The principle involved is the heating of a large number of tubes, at least from twenty-five to thirty, each containing the same suspension, and all heated alike for at least four different times, that are well selected in order to cover the entire range of heat resistance based on percentage survival. This new method has a direct bearing on all sterilization processes, since the actual (resistance) death point can be determined more accurately.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

23: 163-268 (April) 1924

*Effect of Alcohol on Patellar Tendon Reflex. W. W. Tuttle, Columbus. —p. 163.
Anaphylactoid Phenomena from Various Agents Injected Intravenously. P. J. Hanzlik, San Francisco, and H. T. Karsner, Cleveland.—p. 173.
Quantitative Protozoocidal Comparison of Opium Alkaloids. C. E. Bills and D. I. Macht, Baltimore.—p. 261.

Effect of Alcohol on Patellar Tendon Reflex.—Data were collected by Tuttle from twelve normal subjects in good health. The usual method of procedure was to allow each subject to deliver normal kicks for some minutes, after which various quantities of alcohol were given by mouth. The effect on the knee jerk was noted. Of the twelve subjects, nine showed augmentation, two depression and one no effect. The fact that the data showed a marked variation in the threshold for alcohol indicates that the dose was too small in case of the subject who showed no effect. Both subjects whose knee jerk was depressed reported that they were accustomed to drinking alcohol daily. Those whose knee jerk was augmented drank alcoholic liquor only occasionally.

Laryngoscope, St. Louis

34: 243-320 (April) 1924

Diagnostic Value of Cold Caloric and Rotation Tests. S. J. Kopetzky and R. Almour, New York.—p. 243.
Treatment of Optic Nerve Involvements as Determined by Optic Canal Radiographs. L. E. White, Boston.—p. 255.
Operation for Correction of Elongated and Humped Noses. J. D. Whitham, New York.—p. 271.
Enucleator that Isolates Tonsil and Contents from Mouth and Pharynx During Tonsillectomy. N. Bigelow, Providence, R. I.—p. 273.
Instrument for Complete Enucleation of Tonsil. A. J. Shekter, Jamaica, N. Y.—p. 277.
Removal of Faucial Tonsils. H. J. Mulford, Buffalo.—p. 281.
Guarded Septum Chisel. S. L. Ruskin, New York.—p. 288.
Galvanocautery in Tuberculosis of Larynx. G. Fetterolf, Philadelphia. —p. 290.
Method of Making Direct Laryngoscopy. W. M. Thompson, Chicago. —p. 300.
Trap Door Esophagoscope. C. Jackson, Philadelphia.—p. 305.
Apparatus for Douching Ear for Removal or Cerumen. M. L. Harris, Brooklyn.—p. 307.

Medical Journal and Record, New York

119: 433-480 (May 7) 1924

*Treatment of Deafness. P. D. Kerrison, New York.—p. 433.
*Early Hanot's Disease. E. Steinfield and S. H. Kohlman, Philadelphia. —p. 440.
Head Injuries. J. F. X. Jones and G. E. Pfahler, Philadelphia.—p. 442.
Extirpation of Cervical Rib Under Local Anesthesia. L. R. Ellars, Louisville, Ky.—p. 445.
Relation of Cholesterol Metabolism to Cholelithiasis and Infection of Biliary Apparatus. A. O. Wilensky, New York.—p. 447.
Alcohol Taxation and Delirium Tremens in Denmark. K. H. Krabbe, Copenhagen.—p. 450.
Education Stoops to Conquer. S. D. House, Los Angeles.—p. 451.
Treatment of Endarteritis Obliterans Syphilitica with Intravenous Injection of Comminuted Mercury. F. G. Young, Brooklyn.—p. 453.
Arsenical Treatment of General Paralysis. C. G. Cumston, Geneva, Switzerland.—p. 454.
Present Status of Blood Transfusion. A. I. Rubenstone, Philadelphia. —p. 455.
Christian Science in Time of Galen. J. Wright, Pleasantville, N. Y.— p. 459.

SUPPLEMENT

Suprarenal Cortex and Medulla in Respiration vs. Diffusion Doctrine of Physiologists. C. E. de M. Sajous, Philadelphia.—p. xcvii.
Clinical Classification of Goiter. C. G. Heyd, New York.—p. ci.
Real Value of Basal Metabolic Rate. A. S. Jackson, Madison, Wis.— p. cv.

Sidelights on Diabetes. J. Aulde, Philadelphia.—p. cvii.
Physiologic and Anatomic Considerations of Ductless Glands. H. Goldstein, New York.—p. cix.

Treatment of Deafness.—The most important field in otology, Kerrison says, is the treatment of deafness. This treatment must aim less at the immediate subject relief and more at the slow building up of more normal conditions of intratympanic tension or balance. Routine catheter inflation is dangerous to hearing on account of the pathologic changes in the membrana tensa to which it may ultimately give rise. Routine or too frequent use of eustachian bougies or sounds is not without risk on account of the subacute reactions in the tubal mucosa to which it may give rise. The first constructive effort in treatment should be an exhaustive search for possible foci of infection. As a preliminary measure, elimination of such a focus is a most positive indication. Tubal disease begins in the pharyngeal end of the canal, and local treatment confined strictly to this region gives the best average results in restoring tubal function. When tubal function is not reestablished by simpler means, surgical measures may prove effective. Tuning fork exercises, used with care, judgment and moderation, provide a rational means of exercising both drum membrane and ossicles. In most cases of advanced deafness, the acoustic nerve and the conducting mechanism are involved; therefore both must be taken into account in treatment. As there are many factors in the etiology of deafness, so is the pathology complex, and no inelastic routine of treatment will yield the best average results.

Hanot's Cirrhosis.—The history of a patient with the clinical picture of hypertrophic biliary cirrhosis is cited by Steinfield and Kohlman. Microscopic studies showed principally early perilobular fibrosis with intralobular invasion of young connective tissue cells and plasma cells. The authors believe that a considerable group of cases of hepatic cirrhosis with jaundice reported in the literature conform to Hanot's clinical description of hypertrophic biliary cirrhosis though the microscopic appearance of the liver is apparently not characteristic.

Military Surgeon, Washington, D. C.

54: 513-640 (May) 1924

Principles of Evacuation. IV. Communications Zone Evacuation. T. L. Rhoads.—p. 513.
Malaria Survey in Citizens' Military Training Camp. F. H. Foucar.—p. 542.
Personnel Division, Surgeon General's Office, U. S. Army. M. Ashford.—p. 545.
Parathyroid Preparations. A. M. Hanson, Faribault, Minn.—p. 554.
Present State of Medicomilitary Aviation in France. R. Picqué, Bordeaux.—p. 561.
Organization of Bureau of Medicine and Surgery, U. S. Army. D. N. Carpenter.—p. 571.
Word Association Test. I. F. Peak.—p. 582.
Preparation for Great German Offensive on Western Front in Spring of 1918. Altgelt, German Army.—p. 595.

Minnesota Medicine, St. Paul

7: 309-404 (May) 1924

Clinical and Insurance Opinion of Insurance Applicant. J. A. Patton, Newark, N. J.—p. 309.
Medical Examiners' Relationship to Company. F. L. Grosvenor, Hartford, Conn.—p. 316.
Pleurisy in Relation to Life Insurance. R. L. Rowley, Hartford, Conn.—p. 320.
Value of Medical Examinations in Life Insurance. D. E. W. Wenstrand, Milwaukee.—p. 322.
Surgery of Congenital Cleft Palate. T. W. Brophy, Chicago.—p. 327.
Factors of Surgery in Gastric Surgery. D. C. Balfour, Rochester, Minn.—p. 337.
Glaucoma. W. H. Wilder, Chicago.—p. 343.
Headaches from Standpoint of Ophthalmologist. P. D. Berrisford, St. Paul.—p. 348.
*Bronchial Asthma. J. M. Lajoie, Minneapolis.—p. 352.
*Anomalous Renal Artery as Cause of Upper Urinary Tract Stasis. F. E. B. Foley, St. Paul.—p. 359.

Vaccine Therapy in Bronchial Asthma.—Lajoie reports two cases of asthma in which a cure was effected by means of an autogenous vaccine made from the patient's sputum.

Upper Urinary Tract Stasis Due to Anomalous Artery.—Foley points out certain criteria to be found in the pyelogram which, in association with the clinical features, permits a diagnosis of upper urinary tract stasis due to anomalous renal artery to be made with reasonable assurance and at an early stage of the process. Four cases are cited.

Philippine Islands Medical Association Journal, Manila

4: 83-124 (March) 1924

*Niyogniyogan (Quisqualis Indica L.) as an Anthelmintic. L. E. Guerrero.—p. 83.
Causes of Death in Medical Wards of Philippine General Hospital. A. B. M. Sison.—p. 87.
Newer Epidemiology. F. Garrison.—p. 89.
*Acute Complete Inversio Uteri. H. Acosta-Sison.—p. 97.
Replanting Teeth. E. R. Aldecoa.—p. 99.

Niyogniyogan as an Anthelmintic.—Guerrero gave the seeds of niyogniyogan to eleven persons infected with ascarids with results that convinced him that this plant possesses anthelmintic properties. The seeds were collected from the plants that grow exuberantly in the vicinity of Manila. The drug was administered in the form of an emulsion in syrup of acacia with triturated seeds. The dose used was one seed per year of age in children and from twelve to twenty seeds in adults for two consecutive evenings, followed on the morning of the third day by a purgative.

Complete Inversion of Uterus.—At the instance of the midwife, the woman, whose case is reported by Acosta-Sison, strained and at the same time the fundus was pressed downward with the result that the whole inverted uterus, with the placenta still attached, protruded through the vaginal introitus. The patient was in a dying condition when Acosta-Sison first saw her; nevertheless, efforts were made to replace the uterus and finally were successful. The patient, however, died a few minutes after reposition.

Rhode Island Medical Journal, Providence

7: 65-80 (May) 1924

Lakeside Preventorium. W. P. Buffum, Jr., Providence.—p. 65.
Work with Undernourished School Children. E. Washburn, Providence.—p. 69.
Prospects for Helping Psychoneurotics. H. B. Sanborn, Providence.—p. 73.

U. S. Naval Medical Bulletin, Washington, D. C.

20: 423-529 (April) 1924

Use of Ethylene for General Anesthesia. C. W. Moots.—p. 429.
Hydronephrosis; Case. R. Cuthbertson.—p. 431.
*Unsuspected Syphilis. W. H. Connor.—p. 439.
Local Anesthesia. C. A. Ingraham.—p. 445.
*Sarcoma; Two Cases. R. M. Choisser.—p. 451.
*Avulsion of Scrotum, Left Testicle and Sheath of Penis. G. F. Cottle.—p. 457.
Case of Hydatidiform Mole. C. C. Kress.—p. 460.

Unsuspected Syphilis.—Several cases are reported by Connor. The first was one of ulcer over the left eye which followed a slight injury. There was no venereal history, and the physical findings, as well as the blood Wassermann reaction, were negative. The second case was diagnosed as epilepsy. There was a history of syphilis and many evidences of it. A diagnosis of neurasthenia had been made in the third case. The man had had blisters on the chest, axillae and back, which were called herpes zoster. After that time he was nervous and easily irritated; his hands were tremulous, and he became irritable and seclusive. The history was negative. The blood Wassermann reaction was negative, but the spinal fluid Noguchi test was positive in all dilutions. Other cases are cited. Connor urges that a blood Wassermann test should be a routine procedure in all cases.

Sarcoma of Soft Palate in Child.—Choisser records a case of sarcoma of the soft palate in a child, aged 23 days. The child died at the age of 1 month. The histopathologic report was: rapidly growing fibrosarcoma.

Avulsion of Scrotum and Penis.—Cottle reports a case of complete avulsion of the skin of the penis, the scrotum and the left testicle. Repair was affected by tucking the denuded right testicle and cord beneath the skin and superficial fascia of the right thigh and inserting the denuded penis in a tunnel made in the left groin between the skin and superficial fascia and the deeper fascia of the thigh or abdomen in that region. Later this sheath was dissected free. The result was entirely satisfactory.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

21: 1-80 (March) 1924

"Idiopathic" Hypertrophy of Bladder. A. D. Fordyce and N. B. Capon.—p. 1.
Late Rickets and Osteomalacia. H. S. Hutchinson and G. Stapleton.—p. 18.
Calcium and Phosphorus Content of Blood in Normal and Rachitic Children. G. H. Anderson.—p. 33.
*Anemia with Enlarged Spleen in Infancy and Childhood. G. W. C. Ramsay.—p. 48.
*Precocious Puberty. R. Hutchison and G. M. Wauhope.—p. 57.

Idiopathic Hypertrophy of Bladder.—In neither of the two cases reported by Fordyce and Capon was there tangible or obvious cause for the condition present. The cases at first sight resembled chronic interstitial nephritis. Physical examination revealed a globular hypogastric mass which was the hypertrophied bladder. Otherwise there are in these cases usually no definite abnormal physical signs. The children affected are often undersized, ill nourished, and develop in the course of time uremic symptoms. Urinary infection always occurs sooner or later. There is marked renal inefficiency. As seen postmortem, the condition consists in hypertrophy and dilatation of the bladder, dilatation of the ureters and dilatation of the pelves of the kidneys, with cystlike degeneration of the kidney tissue. No organic source of obstruction was found in either case here reported. A remarkable feature of the bladder in both cases was the complete replacement of the transitional epithelium by columnar epithelium.

Infantile Splenic Anemia.—On analyzing 120 cases of anemia in children under 4 years of age, Ramsay found twenty-five that showed all the features which are generally considered essential to justify a diagnosis of infantile splenic anemia, i. e., cases in which there were anemia, degenerating and regenerating forms of red cells, myelocytes in the peripheral blood and enlargement of the spleen. Tuberculosis was present in four cases; pneumonia in three; syphilis in one. There was a history of hemorrhage of varying degrees in four cases; chickenpox was present in one case; rickets in twenty-two. It is suggested that rickets may be a predisposing factor in the etiology of this disease.

Precocious Puberty.—Hutchison and Wauhope relate the case of a girl, aged 3½ years, who began to menstruate at the age of 17 months and continued to do so. The period lasted for two or three days, and returned at regular intervals of twenty-eight days, except on three occasions when the interval was exactly two months. After the child's third birthday the interval became irregular and of longer duration, i. e., from two or three days to a fortnight over the month. The presence of pubic hair was noticed at the time of the onset of the first period. The breasts were enlarged. She had eight teeth at ten months; she walked at fourteen months. She had no illness and never suffered from headache or vomiting.

British Medical Journal, London

1: 697-736 (April 19) 1924

*Endocrinology from Physician's Point of View. A. E. Gow.—p. 697.
Differential Diagnosis Between Acute Thoracic and Acute Abdominal Lesions. V. Z. Cope.—p. 700.
*Carbuncle: Treatment by Magnesium Sulphate. A. E. Morison.—p. 703.
Correct Technic of "Injection Method" of Treating Hemorrhoids. P. K. Murphy.—p. 704.
Brain and Mind. R. J. A. Berry.—p. 707.
*Linimentum Calcis Chlorinata in Treatment of Burns. J. W. Tomb.—p. 711.
Secondary Hemorrhage Following Acute Mastoiditis. L. D. Mercer.—p. 711.
Congenital Deformities of Forearm, Hand and Leg. H. E. Harris, Jr.—p. 711.
Paroxysmal Tachycardia. H. E. K. Reynolds.—p. 711.

Value of Endocrine Therapy.—Gow is of the opinion that the majority of extracts of ductless glands, as at present prepared, have no obvious effect administered by mouth. Animal experiment has shown that tissue extracts in general, when injected intravenously, have much the same effect as any other foreign protein, and, with few exceptions, are in no way specific. There is no evidence that any extract other than thyroid or parathyroid is absorbed as such from the alimentary tract. However, epinephrin is valuable in shock, in asthma and other spasmodic affections such as cardiospasm, urticaria and angioneurotic edema, and pituitary extract is a stimulant to a failing myocardium, especially in toxic myocarditis and in the third stage of labor. Gow states emphatically that if any advance in therapeutics is to be made with glandular extracts of doubtful action the practice of giving multiple extracts as a sort of blunderbuss, in the hope that one among the many may hit the mark, must be checked.

Magnesium Sulphate Treatment of Carbuncle.—Morison has treated twenty-eight cases of carbuncle by applying to the whole of the inflamed area a paste of magnesium sulphate. Eleven ounces of glycerin are put in a hot mortar and 1.5 pounds of dried magnesium sulphate are added, slowly stirring and mixing with a warm pestle. The result is a thick white cream, so hygroscopic that if exposed to the air it rapidly absorbs moisture and becomes fluid. The paste is spread thickly on a piece of sterile white lint sufficiently large to cover the whole of the inflamed area. A piece of jaconet is put over the lint to cover it entirely, and cotton-wool in abundance over and around the part. The dressing is left unchanged for twelve or twenty-four hours and then renewed. Within a few days the central slough separates and a raw granulating surface is left. As soon as the slough has separated the crateriform ulcer is dressed with the paste until all signs of sphacelating cellular tissue have disappeared and a healthy granulating surface is seen. The cavity is then packed daily and the undermined edges supported with strips of sterile lint about 1½ inches wide, wrung loosely out of a saturated solution of magnesium sulphate made by dissolving 40 ounces of the sulphate in 30 ounces of boiling water and 10 ounces of glycerin, and sterilizing in an autoclave. The whole area is then covered with a double layer of lint saturated with the solution, over which a piece of jaconet and then cotton-wool is placed, and fixed loosely in a bandage. This dressing is renewed daily until the healthy firm granulation tissue is level with the surrounding skin margins. It can then be covered with Thiersch skin grafts or allowed to epithelialize from the edges if the surface is not too extensive.

Chlorinated Lime Treatment of Burns.—A solution of chlorinated lime has been used by Tomb in the treatment of burns with much satisfaction. Burns treated with this liniment heal rapidly without pain, suppuration or rise of temperature; sloughing, dead or decomposing material quickly disappears; in short, the liniment possesses all the antiseptic qualities of the hypochlorites together with the original virtues of linimentum calcis.

Brain, London

47: 1-108 (Feb.) 1924

*Pathogenesis of Cerebral Diplegia. J. Collier.—p. 1.
*Dissociation of Voluntary and Emotional Innervation in Facial Paresis of Central Origin. G. H. Monrad-Krohn.—p. 22.
*Pathologic Anatomy of Disseminated Sclerosis. C. P. Symonds.—p. 36.
Study of Electromyograms of Voluntary Movement. F. Golla and J. Hettwer.—p. 57.
Electromyographic Studies of Experimental Convulsions. S. Cobb.—p. 70.
*Sequels of Lethargic Encephalitis. A. G. Duncan.—p. 76.
Pyknolepsy. W. J. Adie.—p. 96.

Pathogenesis of Cerebral Diplegia.—Primary degeneration of the neurons is considered by Collier to be the essential and primary lesion in all cases of diplegia. Arrest of development of the brain and of its outgoing paths is the natural consequence of the neuronic lesion when this occurs during the earlier periods of development of the brain, and consequently it only occurs in prenatal cases. Atrophic sclerosis of the brain is the natural consequence of the neuronic decay. It is more marked the earlier in life the neuronic decay occurs and the longer the patient has lived after the degeneration has been installed.

Motor Apparatus in Facial Paresis.—In four cases of central facial paresis Monrad-Krohn found an acceleration

and exaggeration of emotional movements of the face, combined with voluntary paresis of the same distribution. This, in his opinion, can be only regarded as a "phénomène de libération." It suggests that the emotional motor apparatus is distinct from the voluntary motor apparatus, and that the former is normally subjected to a continuous inhibition by the voluntary motor centers, probably exerted through the pyramidal fibers. This supports the belief that the lenticular nucleus (probably its pallidal part) contains the motor center for emotional innervation, the thalamus probably being the corresponding sensory center in the emotional reflex arc.

Pathology of Disseminated Sclerosis.—Symonds reports a case of disseminated sclerosis in which true inflammatory changes were shown to be present. Innumerable foci of degeneration were scattered through the cerebrospinal axis. The distribution of these foci was that commonly found in disseminated sclerosis, viz., in the white matter of the cerebral hemispheres, and especially around the posterior horns of the lateral ventricles, in the optic chiasma, in the brain stem, especially around the aqueduct of Sylvius, in the posterior and lateral columns of the spinal cord.

Sequels of Lethargic Encephalitis.—Duncan asserts that evidence of mental impairment or of organic disease of the nervous system is found in nineteen twentieths of patients who have suffered from lethargic encephalitis; in two fifths there is serious and frequently progressing disability. The severe and occasionally fatal nature of the sequels, their irregular clinical course with remissions and relapses, and the frequently acute onset of these relapses, strongly suggest that in some cases the virus of lethargic encephalitis continues to exist in the nervous system long after the acute symptoms have subsided.

China Medical Journal, Shanghai

38: 169-254 (March) 1924

Epidemic Encephalitis. M. O. Pfister.—p. 169.
Diagnosis of Trachoma. E. J. Stuckey.—p. 182.
Routine Examinations of Urine in Korean Hospital. J. D. Van Buskirk.—p. 184.
Psoriasis Vulgaris. F. Reiss.—p. 195.
Leukocyte Count in Pregnancy. F. R. Crawford.—p. 199.
*Globulin Precipitation and Formol Gel Tests in Kala-Azar. E. B. Struthers and C. C. Ch'un.—p. 203.
*Kala-Azar: Criterion of Cure. E. B. Struthers.—p. 207.
Public Health of Antung, Manchuria. L. K. Larsen.—p. 221.
Carrel-Dakin Cell with Alternating Current. B. R. Stephenson.—p. 222.
Industrial Accidents, Shanghai. H. W. Decker.—p. 226.

Globulin Precipitation and Formol-Gel Tests in Kala-Azar.—Of 141 kala-azar patients tested by Struthers, 92.9 per cent. gave a positive globulin precipitation test, and 98 per cent. a positive aldehyd test.

Criteria of Cure in Kala-Azar.—The most satisfactory criteria of cure of kala-azar in Struthers' experience are (1) increase in general well being and weight; (2) a return to normal temperature continued for a month or six weeks; (3) decrease in size of the spleen, and (4) an increase of leukocytes and hemoglobin.

Heart, London

11: 1-79 (Jan.) 1924

*Auricular Fibrillation in Domestic Animals. J. Roos.—p. 1.
*Aortic Lesions of Subacute Infective Endocarditis. R. T. Grant.—p. 9.
*Reaction to Exercise of Heart Affected by Auricular Fibrillation. H. Blumgart.—p. 49.
*Clinical "Capillary Pulsation." E. P. Boas.—p. 57.
*Auricular Flutter. F. N. Wilson.—p. 61.
*Ventricular Tachycardia During Attack of Paroxysmal Auricular Tachycardia. P. S. Barker.—p. 67.
Nerve Supply of Coronary Artery of Tortoise. I. The Artery. A. N. Drury and F. M. Smith.—p. 71.

Auricular Fibrillation in Domestic Animals.—Four cases of auricular fibrillation in the horse and three cases in the dog are described by Roos. It is said that in the horse the affection is not a rare one, whereas, in the dog it is.

Aortic Lesions of Subacute Infective Endocarditis.—Thirty cases of subacute infective, or bacterial, endocarditis were the basis of Grant's study. A survey of this material and of past records shows that an endocarditis associated with lesions of the aortic wall and its sinuses is usually of the subacute infective type. Hitherto these aortic lesions have been interpreted variously as arising either from embolism of the nutrient vessels of the aorta or from infection of the intima. The evidence from previous cases tends to show that although embolism is a possible cause, intimal infection from the lumen of the aorta is the usual mode of origin. Illustrative cases are given in which vegetations of the heart valves have given rise by contact to similar lesions on neighboring structures. In the present series of thirty cases of subacute infective endocarditis, lesions of the aorta and sinuses were present in fifteen. These lesions were in the form of vegetations, fissures and aneurisms, and their distribution on the surface of the aorta and sinuses leads to the conclusion that they are all due to surface infection from contact with vegetations of the aortic valves.

Effect of Exercise in Auricular Fibrillation.—As compared to the reaction of a normal heart, the heart affected by auricular fibrillation was found by Blumgart to respond to test exercise by a disproportionate rise in ventricular rate, and a delayed return to the previous resting level. The delayed return of the ventricular rate in auricular fibrillation to previous resting level is not due to the abnormal mechanism, but to an additional factor. For it is also exhibited, as is also an exaggerated rise of ventricular rate in response to exercise, by the same patients when the heart's mechanism has been restored to normal. In these respects the reaction is similar to that found in the "effort syndrome." Digitalis in ordinary therapeutic doses fails to protect the ventricles from the exaggerated response to exercise. In auricular fibrillation, when the ventricular rate rises as a result of exercise, the auricular rate usually falls.

Clinical Capillary Pulse.—Boas is of the opinion that the clinical "capillary pulse" on the lip, forehead, and on the finger over the root of the nail, is mainly a phenomenon not of the capillaries of the papillae of the skin or mucous membrane, but of the subpapillary and cutaneous vascular plexuses.

Auricular Flutter.—Wilson reports a case of auricular flutter in which vagus stimulation was followed by a conspicuous increase in the rate of the circus rhythm. This increase is attributed to a shortening of the path of the circus wave brought about by a reduction in the length of the refractory period of the auricular muscle.

Ventricular Tachycardia During Auricular Tachycardia.—Barker cites a case showing a short run of irregular ventricular tachycardia during an attack of paroxysmal auricular tachycardia.

Journal of Tropical Medicine and Hygiene, London

27: 85-96 (April 15) 1924

Cholera in Bagdad. T. B. Heggs.—p. 85.

Lancet, London

1: 887-934 (May 3) 1924

*Influence of Tropical Climate on Man. C. Eijkman.—p. 887.
*Tinnitus Aurium Associated with Abnormalities of Blood Pressure. H. M. Wharry.—p. 893.
Diagnostic Value of Roentgen-Ray Examination in Traumatic Intestinal Rupture. G. Massie.—p. 895.
Case of Protracted Diabetes Mellitus in Childhood Arrested by Insulin. W. H. Passmore and M. O. Raven.—p. 896.
Enteric Fever in Natives of Uganda Protectorate. H. L. Duke.—p. 897.
*Myeloma of Upper Alveolus in Child. P. B. Kittel.—p. 900.
*Four Cases of Herpes Zoster. H. A. Cookson.—p. 901.
Automatic Pipette for Hematologic Purposes. A. Piney.—p. 906.

Influence of Tropical Climate on Man.—Eijkman asserts that the pale complexion of the white resident in the tropics is not a sign of anemia nor is there any delay in regeneration of his blood after acute traumatic hemorrhage. All things considered, there exists no purely physiologic anemia of hot countries. The same parts of the skin that are usually red in the cool climate, with its strong variations of temperature, in course of time assume a pale color when they are almost continually in warm surroundings. Nor does the skin of the face form an exception in this respect. In the hot littorals, the skin of the native's face is also anemic. Eijkman has also investigated the matter of differences in metabolism between white settlers and natives. He could not bring

to light any real differences, as regards metabolism and heat production, either between a cool and a hot area, or between the white and the colored race. In the given circumstances the heat production per square meter is the same for the two races. Therefore, this must also be the case with the heat loss. The heat stimulus incites the sweat secretion in the white more than in the colored man; hence he perspires more, and consequently gives off less heat by radiation and convection. Yet his sweat secretion far too quickly goes beyond the limits of a rational heat regulation and becomes superfluous. That the white sweats more plentifully and produces more urine is not merely the consequence of his taking more water; the causal nexus is rather the reverse. As compared with those of the natives, his sweat glands and his kidneys show a greater activity, independent to a great extent of the water intake. He must, therefore, drink more water in order to maintain the water content of his body. No doubt the greater activity of his kidneys is to be accounted for by the fact that he has to excrete nearly twice as much nitrogen as the native. The chief objectively perceptible difference between the two races consists in the function of the skin. The colored man is by his pigmentation better protected against the chemical active rays of the sun, and he is not so subject to excessive sweating. It appears to Eijkman that the much discussed acclimatization consists rather in an external than an internal process; rather in making, by imitation and custom, a second nature of a manner of living more adapted to the climate than in adequate changes of the bodily organization as such. The native's frugality both in respect to food and drink, his, as a rule, calm, resigned view of life, his rule of festina lente, would deserve, from a purely sanitary standpoint, to be set as an example to the white sojourner in the tropics, at the risk, however, of his being after all no more in the full sense the pushing power, so necessary for the development of tropical countries. The atmosphere of the tropics, often so windless, so leaden, oppresses the colored man less than it does the white, to whom continuous mental and physical strain can become quite a torture.

Tinnitus Aurium with High Blood Pressure.—Fifteen cases cited by Wharry illustrate the frequently occurring combination of tinnitus and high or low blood pressure. Apparently severe tinnitus aurium may be due to a high blood pressure alone or to a low blood pressure alone, in which case it is usually found to be bilateral. It may be due to an aural lesion combined with a high blood pressure, or with a low blood pressure, in which case the tinnitus is on the side of the lesion. The tinnitus may be cured or improved by removing the aural lesion alone, or by reducing the blood pressure to approximately normal, or by doing both. Nitroglycerin is of great value as a therapeutic agent in the cases associated with a high blood pressure, as it appears to have a specific effect in relieving the tinnitus.

Myeloma of Alveolus After Trauma.—In the case cited by Kittel, a boy, aged 5 years, fell against a wall, knocked out the middle right incisor tooth of the upper jaw, and chipped his left middle incisor. The injured gum gave no trouble and was believed to have healed, but it was noticed later that the site of the lost tooth was becoming filled with a dark red substance. This grew until it became uncomfortable from its size. It was painless and did not bleed. The growth was excised and proved to be a typical myeloma.

Herpes Zoster an Infectious Disease.—The four cases cited by Cookson are said to support the theory that this disease is really an infective poliomyelitis posterior acuta. The persons concerned in this outbreak were all in fairly close contact at their work daily, and it appears that they infected each other. At the same time there was a fair amount of chickenpox in the district in which they lived, the outbreak of chickenpox being at its height when these herpes cases occurred. These four patients had had chickenpox previously. A fifth case occurred in a medical man who, fourteen days after seeing a patient with herpes zoster, manifested an eruption in the supra-orbital region. He had severe pain and a considerable eruption. He had had an attack of herpes zoster twenty years before.

Medical Journal of Australia, Sydney

1: 277-300 (March 22) 1924

Intrapleural Pressures in Artificial Pneumothorax Therapy. J. G. Hislop.—p. 282.
*Paraphrenia Systematica with Ten Forms of Hallucinatory Sensation. R. F. Jarrett.—p. 288.
*Gangrene of Feet in Infant. F. W. Hoopman.—p. 288.

SUPPLEMENT

Operation for Exophthalmic Goiter. M. O'G. Hughes.—p. 129.
Effect of Treatment in Hyperthyroidism Controlled by Observations of Basal Metabolic Rate. H. C. Trumble.—p. 131.
General Anesthesia in Exophthalmic Goiter. F. L. Davies.—p. 135.
Operation for Exophthalmic Goiter. H. B. Devine.—p. 137.
Empyema. H. S. Newland.—p. 143.
Empyema in Infants and Children. H. D. Stephens.—p. 146.
Floating Cecum as Definite Pathologic Entity. F. A. Hadley.—p. 151.

Systematic Paraphrenia.—From the standpoint of clinical classification, the case cited by Jarrett would appear to fall most readily into the group designated by Kraepelin as paraphrenia systematica, characterized by the insidious development of a continuously progressive delusion of persecution, to which are added later, ideas of exaltation without decay of the personality. It is placed midway between dementia paranoides and true paranoia. It is separated from the former chiefly on the ground that there is not the same destruction of the personality to justify the appellation dementia and from the latter because hallucinations invariably occur and the delusions tend to be more fantastic. Hearing, sight, smell, taste, touch, temperature and pain sense were affected. Psychomotor and sexual disturbances were also existent.

Gangrene of Foot in Infant Caused by Cardiac Lesion.—Hoopman reports the case of an infant, aged 2 weeks, which on admission was rather dusky. The mucous membranes were slightly cyanosed. The abdomen was distended. The feet were bluish. Seven days later, the baby died. There was dry gangrene of the left foot, extending 1.25 cm. above the malleoli. The toes of the right foot were also gangrenous, but in them the condition was not so far advanced. On opening the pericardial sac an early serofibrinous pericarditis was noted. The myocardium showed considerable parenchymatous degeneration. The foramen ovale was patent to a probe. There was a small antemortem thrombus in the right auricular appendix, and on opening the left auricle, the appendix of that side was found to be filled with a large antemortem thrombus. In the aorta a large antemortem thrombus obstructed the lumen from just above the origin of the renal arteries to past the bifurcation and extended into the iliac and femoral arteries.

Medical Journal of South Africa, Johannesburg

19: 233-268 (March) 1924

*Pyelography as Aid to Diagnosis in Chronic Abdominal Pain. E. B. Fuller.—p. 236.
Ancylostomiasis in Natal and Zululand. G. A. P. Ross.—p. 238.
Sterilization of "Mental Defect." C. H. Bidwell.—p. 241.
Licensure in South Africa. H. De Villiers.—p. 242.
New Anesthetic Mask. G. Dunderdale.—p. 249.

Pyelography Aid in Diagnosis of Abdominal Pain.—Five cases are cited by Fuller. All had, as a main feature, chronic recurring abdominal crises of a painful nature, usually confined to one or the other side but sometimes of a more general distribution and with varying degrees of effect on the general health. In nearly every case the appendix had been removed as a possible cause of the condition; in others, the ovary had been removed. In one case the gallbladder had been suspected and was opened without result. Pyelograms in these cases showed that a kinking or distortion of the ureter was the cause of the abdominal pain. In no case was the clinical diagnosis correct. Fuller urges routine pyelography in every case of abdominal pain in which the cause of the pain cannot be determined definitely and clearly.

Sei-I-Kwai Medical Journal, Tokyo, Japan

42: 1-6 (Dec.) 1923

Placenta Toxin. Y. Okawa.—p. 1.
Antidotal Action of Serum Against Placenta Toxin. Y. Okawa.—p. 4.
Blood and Serum Changes Caused by Injection of Milk. M. Nishio.—p. 5.

43: 1-13 (Feb.) 1924

Psychophysiologic Studies on Typewriting. S. Uramoto.—p. 1.

Annales de l'Institut Pasteur, Paris

38: 273-370 (April) 1924

Piroplasmosis of Cattle in Algiers. E. Sergent et al.—p. 273.
Variability of Lactic Fermentation. A. Lumière.—p. 344.
Preisz-Nocard's Bacillus. Le Soudier and J. Verge.—p. 358.
*Action of Lysins of Serum. E. Poyarkoff.—p. 366.

Action of Lysins of Serum.—Poyarkoff believes that the antibody forms with the antigen a lyophobe compound which is coagulated by the salts of the medium. Complement fixation might be represented in the following way: The negatively charged antigen attracts the positively charged amboceptor. After this it can seize the negatively charged complement. The resulting lyophobe compound is coagulated by the salts.

Bulletin de l'Académie de Médecine, Paris

91: 521-546 (April 29) 1924

*Diphtheria Immunization. L. Martin.—p. 523.
*Family Physician and Official Medical Inspector. Siredey et al.—p. 530.
*Typhoid Vaccination by Mouth. C. Achard and S. Bloch.—p. 531.
*Frequency of Progressive Paralysis. A. Marie and V. Kohen.—p. 536.
War Tuberculosis. G. Brouardel.—p. 540.
Individual Isolation of Children in Hospitals. A. Lesage.—p. 544.

Diphtheria Immunization.—Martin reports the results of the investigation of the committee on Ramon's anatoxin. One injection of 0.5 c.c. causes a negative Schick test in about 30 per cent. of subjects. If it is followed by 1 c.c. in two weeks, the percentage of the immune rises to 88 per cent. A third injection, this time of 1.5 c.c., after another two week interval immunizes practically everybody (98.5 per cent.). The reaction is slight, and marked discomfort occurs only in patients with Schick's pseudoreaction.

Family Physician and Official Medical Inspector.—The Academy adopted a resolution declaring the incompatibility of the duties of the treating physician in contract practice with those of the controlling medical official.

Typhoid Vaccination by Mouth.—Achard and Bloch endeavored to find a test for the efficacy of typhoid vaccination by the mouth. Intradermal reactions remained positive. Agglutinins were not produced. Only the complement fixation test may give a positive response, but it does not always appear early.

Frequency of Progressive Paralysis.—Marie and Kohen confirm a slight decrease in the number of patients with general paralysis in 1919-1923 as against 1909-1913. Yet they found that only the number of men had decreased (1,343 against 1,843), while the number of female cases has increased. They point out that many candidates for progressive paralysis were killed in the war.

Comptes Rendus de la Société de Biologie, Paris

90: 909-988 (April 11) 1924. Partial Index

Susceptibility to Experimental Anthrax. A. Boquet.—p. 911.
Ammoniacal Nitrogen in Yeast. A. Fernbach and D. Triandafil.—p. 912.
Proteolytic Power in Aspergillus. G. Malfitano and M. Catoire.—p. 914.
*Tubercle Bacilli from Filtrate. H. Durand and A. Vaudremer.—p. 916.
*Intermittent Function of the Liver. N. Fiessinger and H. Walter.—p. 917.
Antigen for Serodiagnosis of Syphilis. A. Jaubert.—p. 918.
Insulin Saves Pancreatectomized Dog. E. Hédon.—p. 920.
Hypertonic Saline and Hydrating Tendency of Muscle. E. and H. Biancani.—p. 926.
Mechanism of Deglutition. R. V. Caballero.—p. 927.
*Parthenogenesis with Desiccated Sperm. J. Rostand.—p. 931.
Oxidation Reduction Without Catalyzers. Girard and Platard.—p. 933.
*Sex-Linked Heredity in Fowls. A. Pézard and F. Caridroit.—p. 935.
*Antibodies in Serum of Tuberculous Children. P. Armand-Delille et al.—p. 936.
Erythrocyte Stroma as Antigen. H. Diacono.—p. 939.
Blood Alkali Reserve in Gestation. Weismann-Netter.—p. 941.
*Antagonism of Micro-Organisms. L. Müller.—p. 944.
Water Losses and Calorimetry. A. K. Noyons and W. Stricker.—p. 945.
Chronaxia Gage. A. K. Noyons and C. D. Verrijp.—p. 948.
Experimental Permanent Hyperglycemia. Bouckaert and Stricker.—p. 952.
Peptone Shock in Dog. H. de Waele.—p. 955.
*Secretion of Antithrombin. H. de Waele and J. van de Velde.—p. 957.
Influencing Ripening of Star-Fish Eggs. A. Dalcq.—p. 958.
Flocculation of Diphtheria Toxin by Antitoxin. E. Renaux.—p. 964.
*Mechanism of Bradycardia. C. Heymans and A. Ladon.—p. 966.
Osmotic Pressure of Serum Proteins. P. Govaerts.—p. 969.
Action of Roentgen Rays on Spontaneous Mouse Cancers. J. B. Murphy et al.—p. 972.
Action of Roentgen Rays and of Tar Much Alike. Murphy and Maisin.—p. 974.
Continent Intestinal Fistulas. E. Lauwers.—p. 976.
Vaccination Against Herpes. M. le Fèvre de Arric.—p. 978.
Pseudomotor Phenomena and Antidromic Vasodilatation. F. Bremer and P. Rylant.—p. 982.
*Influence of Ions on Growth. P. Mendéléeff.—p. 985.
*Genesis of Embryonic Tissues. P. Mendéléeff.—p. 987.

Return to Type of Filtered Tubercle Bacilli.—Durand and Vaudremer ground 10 c.c. of pus from a cold abscess with sand and the same volume of physiologic sodium chlorid solution. The emulsion was passed through filter paper and through a Chamberland L^3 filter; 1 c.c. of this liquid was inoculated intraperitoneally in two guinea-pigs. It produced in one of them an orchitis with typical tubercle bacilli. This experiment seems to show that certain elements of tubercle bacilli pass through the filter and can produce tuberculous lesions containing typical tubercle bacilli.

Intermittence in Functional Rhythm of the Pathologic Liver.—Fiessinger and Walter emphasize that intermittence in elimination through the urine of biliary salts, urobilin or glucose of hepatic origin—which is a normal condition—is more pronounced in cases of insufficiency of the liver. Intermittent elimination is symptomatic of exhaustion of the liver from functional strain, as from meals, standing or walking. A hepatic lesion only exaggerates this physiologic phenomenon of intermittence.

Traumatic Parthenogenesis with Desiccated Sperm.—Rostand reports experiments made with desiccated and pulverized testicles from frogs. The slightly moistened powder was inoculated in numerous unfertilized eggs, and the eggs developed in large numbers. The results were almost as good as with fresh sperm, even with a 3-year-old powder.

Sex-Linked Heredity in Fowls.—Pézard and Caridroit conclude that their hormone theory explains sex-linked heredity better than Morgan's chromosome theory.

Action of Antigen on Serum of Tuberculous Children.—Armand-Delille, Duhamel and Marty confirm the assertion of Boquet and Nègre that injections of their methyl alcohol antigen produce a progressive and often considerable increase of antibodies in the serum of tuberculous children.

Aldehyd in the Phenomena of Microbian Antagonism.—Müller investigated which bacteria tolerate formaldehyd best. Cultures of different strains of bacteria proved that colon bacilli and lactic acid bacilli display the greatest resistance to this very active antiseptic, which is a normal product of their metabolism.

Induced Secretion of Antithrombin by Excitation of Cyon's Nerve.—De Waele and van de Velde say that excitation of Cyon's nerve in normal rabbits does not affect the coagulability of the blood. But such excitation during inanition produces a notable diminution, possibly even arresting coagulation entirely. The explanation is that three favorable conditions exist during inanition: low abdominal pressure, good oxygenation of the blood and urinary acidity of p_H 5.5 to 5.

Mechanism of Bradycardia.—Heymans and Ladon conclude that epinephrin has no direct action on the pneumogastric center except that, when large doses are used, they induce anemia of the center. Normally, bradycardia from hypertension or epinephrin is of reflex, not of central, origin. In case of hyperexcitability of the pneumogastric center, epinephrin or hypertension produces bradycardia by direct action on the center.

Action of Metal Ions on Growth of Tissue in Vitro.—Mendéléeff emphasizes that abundance of calcium ions seems to stimulate the growth of embryonal tissues.

Placenta in Genesis of Embryonal Tissues in Vivo.—Mendéléeff says his experiments prove that the substance which stimulates growth of young embryonal tissues is in the placenta.

Médecine, Paris

5: 485-559 (April) 1924

Obstetrics and Gynecology in 1923. L. Devraigne.—p. 485.
Favorable Positions in Delivery. Demelin.—p. 490.
*Treatment of Puerperal Infection. J. L. Chirié.—p. 494.
Colles' and Profeta's Laws. G. Ecalle.—p. 499.
Treatment of Induced Abortion. J. Lemeland.—p. 505.
The Paternity Question. Duvoir.—p. 511.
*Mercuric Cyanid in Pregnancy. J. Sauphar.—p. 514.
Blood Examination in Pregnancy with Hemorrhages. R. Daunay.—p. 519.
The Mickulicz Drain. J. L. Faure.—p. 524.

Congenital Malpositions of the Uterus. P. Descomps.—p. 529.
Retention of Menses. A. Siredey.—p. 532.
Conservative Treatment of Salpingitis. Deniker.—p. 537.
Bartholinitis. A. Bergeret and T. Fontaine.—p. 543.
Proliferating Ovarian Cysts. H. Duclaux.—p. 548.
Present Status of Drugs in Neuropsychiatry. P. Courbon. Supplement.—pp. 1-32.

Direct Treatment with Lactic Acid Bacilli in Puerperal Infection.—Chirié extols the use of pure cultures of lactic acid bacilli introduced into the vagina and uterus. The lactic acid generated stops the development of streptococci. This culture induces also intensive local leukocytosis, a very important fact in healing processes. Bacteriologic examination showed rapid disappearance of streptococci in the uterine discharge. Chirié uses this vaccine therapy in pregnancy vaginitis, in protracted labor with ruptured membranes, and after delivery in cases of incision of the cervix, or application of forceps, or lacerations. This lactic acid-bacillus therapy is absolutely harmless, and is extremely useful in disinfection of the genital organs, especially in puerperal infections.

Mercuric Cyanid in Pregnancy.—Sauphar emphasizes the advantages of mercuric cyanid for pregnant syphilitic women, especially those with albuminuria. It contains 80 per cent. mercury, and is eliminated extremely rapidly and completely in twenty-four hours. It has a remarkable diuretic action, and the edema disappears and the patient loses weight. The only method is by daily intravenous injections to a total of twenty or thirty injections.

Paris Médical

377-392 (April 26) 1924

Iodized Oil in Radiologic Practice. J. Forestier.—p. 377.
*Valve Pleurotomy. J. Tourneix.—p. 384.
Vagosympathetic Tonus in Asthma. F. Claude.—p. 387.

Valve Pleurotomy.—Tourneix gives an illustrated description of his method of draining acute purulent pleuritis with a broad sheet of rubber tissue slipped into the opening in the ninth or tenth interspace. The rubber fits tight across the opening and is fastened to the intercostal muscles or a rib; the outer end hangs out like a flat curtain. During expiration, pus oozes out along the rubber, but during inspiration the rubber is drawn in, closing the opening air-tight. In the fifteen cases in which this treatment was applied, from eight to sixty days after the first symptoms, all the patients were dismissed in good condition in from thirty to sixty-three days, an average of thirty-five. The earlier the drainage was begun, the more rapid the cure.

Presse Médicale, Paris

32: 341-352 (April 19) 1924

*Action of Insulin. M. Labbé.—p. 341.
*Atropin in Spastic Conditions. C. Abadie.—p. 341.
Fractional Diuresis Test. P. L. Violle.—p. 343.
*Operation for Double Hernia. A. Tzaico.—p. 344.
Iodized Oil in Radioscopy of Air Passages. J. Mouzon.—p. 349.

Comparison of Action of Insulin on Glycosuria and on Acidosis.—Labbé emphasizes that insulin acts with different efficiency on acidosis and on glycosuria in diabetes. Although acidosis appears in cases with pronounced glycosuria, and both these metabolic disturbances are due to insufficiency of pancreatic secretion, yet they are independent of each other. His conclusion from his investigations is that insulin is effectual in cases of acidosis and consequently in diabetic coma, while glycosuria is influenced more by dietetic measures.

Atropin for Diagnosis and Treatment of Disturbances from Vascular Spasm.—Abadie refers, among other instances, to a case reported by Bard in which disturbance of vision and local asphyxia of the extremities had preceded and accompanied angina pectoris. All these phenomena are due to spasms of blood vessels. Abadie advises, in order to recognize if atrophy of the optic nerve is caused by a shutting off of the blood supply from vascular spasm or by disease of the optic disk, to inject into the back of the orbit 1 mg. of atropin. If the atrophy is of spastic origin, the visual field enlarges and the sight improves within half an hour after the injection. Otherwise, the injection is without effect. Atropin is not only a valuable help in diagnosis, but is also extremely useful in treatment. All his patients with tabetic atrophy of the optic nerve have been improved by these orbital injections of atropin.

Myoplastic Herniotomy for Double Hernia.—Tzaico uses the pectineal muscle in a plastic operation for radical cure of a double hernia, inguinal and femoral, on the same side. He extols its advantages and gives nine illustrations of the technic.

32: 353-364 (April 23) 1924

*Insulin with Maximum of Carbohydrates. Chabanier et al.—p. 353.
Treatment of Varices by Direct Injections. Bazelis.—p. 358.

Insulin Treatment of Diabetes.—Chabanier and his co-workers contend that insulin must not be regarded as a treatment for emergencies only, or as a mere adjuvant to a severely restricted diet. It should be given in a manner to transform the diabetic into a normal person, with the maximum of carbodydrates in the diet which he can tolerate. This has to be determined in each individual case as the kidney threshold for elimination of sugar varies in different persons and in the same person at different times. They apply courses of insulin treatment on the same principles as syphilis is treated. To determine the amount of carbohydrates allowable for each patient, they test the renal diabetic element. Hyperglycemia is not the only cause of glycosuria; these two are not even parallel. Two patients with equal glycemia may have a different quantity of glucose in the urine. This means that the barrier to passage of sugar is not the same in different kidneys. The higher the threshold, the more pronounced and more rapid is the effect of insulin, and a larger amount of carbohydrates may be allowed the patient. They determine, further, the relation between a given intake of carbohydrates and the sugar content of the urine thereafter, comparing the glycemia, fasting, with the glycosuria. The greater the ratio, the larger the quantity of carbohydrates that can be allowed. Daily analysis is made during six days before the systematic insulin treatment is started, determining also the ratio between the acetone bodies and the quantity of fats and proteins in the test diet. The injections are intramuscular; the treatment has to be uninterrupted and of long duration, prolonged at least fifteen days after the complete disappearance of glycosuria. Each injection has to be followed immediately by a meal containing carbohydrates. The insulin is administered in large doses, corresponding to 80 to 160 American units daily, in 2 or 3 injections. In cases of coma the dose is greatly increased. The advantages of treatment on this basis, as evidenced in their 102 patients thus treated, are the rapid disappearance of acetonuria even on 120 gm. of proteins and 120 gm. of fat; the rapid gain in weight and improvement of general condition, and greater security against disturbances from hypoglycemia. They extol the insulin of their own make, one unit corresponding to eight American units. The injections, they say, are painless and without any local complications.

Revue Médicale de la Suisse Romande, Geneva

44: 209-272 (April) 1924

*A Forgotten Malady: Phrenitis. N. Betchov.—p. 209.
Experiences with Anesthesia. E. Martin.—p. 215.
Pathogenesis of Lymphogranuloma. A. Grumbach.—p. 219.
*Tumor of Islands of Langerhans. H. Schneider.—p. 222.
Case of Oppenheim's Disease. Gautier and Thévenaz.—p. 239.
Drug Treatment of Hyperchlorhydria. R. Guillermin.—p. 243.
Venereal Disease in Switzerland. J. Wintsch.—p. 247.
*Instantaneous Cure of Sciatica. Jaquerod.—p. 253.
Functional Transplantation of the Eye in Mammals. Koppanyi.—p. 254.

Diaphragmitis.—Betchov explains that "phrenitis" has been absorbed into the frame of serositis and is now labeled pleuritis or peritonitis. Bilateral pain speaks against pleurisy. Rheumatism of the diaphragm is usually promptly amenable to salicylates, consequently in dubious cases of pain in the diaphragm region it is wise to exclude rheumatism, to start with, by the failure of salicylates to relieve.

Langerhans' Islands Tumor.—Schneider describes what she calls an insuloma, necropsy surprises in an elderly man and a woman. In the fifteen cases of such benign tumors she has found on record, they were all small, and only two of the patients were diabetics, and these had the smallest insulomas.

She is inclined to regard them as a compensating hypertrophy in the predisposed.

Instantaneous Cure of Sciatica.—Jaquerod states that the simple procedure he reports has cured his own sciatica on various occasions and likewise sciatica in others. He was on horseback when seized with severe recurring sciatica, and instinctively he stiffened his leg, the toes in the stirrup, the heel pushed down as far as possible, while twisting the leg in supination, twisting it from heel to hip, keeping the whole as stiff as possible, the heel down. At the same time the upper part of the body was straightened up, twisting the torso inversely to the movement of the leg, looking back over the shoulder of the side affected, while keeping the leg stiff. He studied this set of movements, theorizing to explain the mechanism of the immediate arrest of the sciatica pain. It can be done reclining on a hard surface, bracing the heel against the foot of the bed. The entire limb is extended to the utmost and twisted from hip to heel in one direction while the trunk is extended and twisted in the opposite direction. The relief is sometimes as sudden as with reduction of a dislocated shoulder. Of course, he adds, there are different kinds of sciatica, but this simple maneuver is worth a trial in any kind.

Schweizerische medizinische Wochenschrift, Basel

54: 385-404 (April 24) 1924

*Cancer and Pregnancy. W. Odermatt.—p. 385.
*Goiter in Swiss Recruits. O. Stiner.—p. 391.
Delirium in Heart Disease. R. Massini.—p. 397.
The Hot Springs of Baden (Switzerland). Markwalder.—p. 397.

Cancer and Pregnancy.—Odermatt concludes from his nineteen cases that pregnancy has an unfavorable significance for precancer conditions as well as for the prognosis after operations for cancer of the breast. Only one of his patients, with an early operation, has survived.

Goiter in Swiss Recruits.—Stiner publishes almost complete statistics and geographic charts on the high incidence of goiter among the Swiss recruits. He produced scurvy in guinea-pigs by feeding them with autoclaved vegetables. All of these animals had goiter and caries of the teeth. He believes that the lack of vitamins in the food in many mountain valleys—especially in winter—accounts for the prevalence of goiter. The extremely fine white flour used may also have some etiologic relation to it.

Policlinico, Rome

31: 177-232 (April 15) 1924. Surgical Section

*Nitrogen Metabolism in Tuberculosis of the Kidney. Agrifoglio.—p. 177.
Arteriovenous Aneurysm of the Femoral. C. Arrigoni.—p. 194.
*Sarcoma of Forearm. A. L. Di Bernardo.—p. 201.
Hernia of Bladder Diverticulum. A. Odasso.—p. 211.
Teratoma in Sacrococcygeal Region. Necropsy. G. Zampa.—p. 222.

Nitrogen Metabolism in Renal Tuberculosis.—Agrifoglio lists the findings with micromethods in eleven cases of tuberculous kidneys and two healthy controls. With unilateral lesions the nitrogen content of the blood averaged 0.130 per cent., the range, 0.117 to 0.154. With 0.200 per cent. both kidneys were always found affected. The residual nitrogen ranged from 0.820 to 1.490 per thousand in the bilateral cases, and from 0.370 to 0.510 per thousand in the unilateral. The high figures for the nitrogen output persisted high after nephrectomy but gradually subsided in the course of four to six months, confirming that the kidney left was functionally capable.

Sarcoma of Forearm.—After resection of the inferior epiphysis of both radius and ulna in the young woman, Di Bernardo filled the gap in each bone by a segment from the fibula. The segment was 12 cm. long, and was cut in two parts to fit the gaps. The autografts healed perfectly in place, new-formed periosteum bridging the short space between the stumps and the implants.

Riforma Medica, Naples

40: 361-384 (April 21) 1924

*Formaldehyd Serum Reaction. A. Dazzi.—p. 361.
*Placenta Extracts. A. Ceresoli.—p. 363.
Insulin Treatment of Diabetes. D. Maestrini et al.—p. 365.
Slight Attacks Resembling Epilepsy in Children. Battigelli.—p. 367.

Formaldehyd Serum Reaction.—Dazzi found considerable parallelism between Klausner's reaction with distilled water and Gaté and Papacostas' gelatinization of the serum with formaldehyd. Both reactions were very frequent in syphilis, tuberculosis, malignant tumors and epidemic encephalitis.

Placenta Extracts.—Ceresoli extracted placentas, successively, with physiologic sodium chlorid solution, 96 per cent. alcohol, ether, acetone, and chloroform. From twenty to thirty injections of the extracts were given at four day intervals to young animals. The chloroform extract was inactive. The other extracts induced a marked hypertrophy of the uterus and vagina (up to six or eight-fold). The ovaries and mammary glands were a little larger than in the controls. The general growth of the animal was stimulated at first, then inhibited. The action is not due to lipoids alone.

Anales de la Facultad de Medicina, Montevideo

9: 85-166 (Feb.) 1924

*Surgery of Blood Vessels. Domingo Prat.—p. 85.
*Homogeneization of Sputum. Juan Torrazza.—p. 126.
*Acquired Syphilis in Children. M. A. Jaureguy.—p. 136.
Congenital Absence of Both Tibias. A. Rodriguez Castro and V. Escardó Anaya.—p. 148.

Surgery of Blood Vessels.—Prat analyzes the technic and outcome in thirty-seven cases of operations on large vessels in Lamas' service. The popliteal artery seems to bear operations particularly well, and the sequelae of resection of arteriovenous aneurysms were slight.

Homogeneization of Sputum.—Torrazza declares that nothing can compete with formaldehyd for this purpose. He freezes the sputum. As a fluid freezes, the impurities are crowded out into a certain stratum of the resulting ice. By freezing the fluid sputum, the bacteria are thus concentrated, as it were, in the heart of the resulting block of ice by the physical laws regulating freezing, without the necessity for centrifugation. By using carbon tetrachlorid as a separator, separation is accelerated, and the test tube is then placed in the refrigerating mixture of salt and brine.

Acquired Syphilis in Children.—Jaureguy discusses eight cases. The primary chancre is often on the lip, and a satellite enlarged gland always gives the clue, even after the chancre has healed. He remarks that in Montevideo in the last two years, 50 per cent. of the syphilitics taking treatment are cases of recent infection. This shows that the prophylactic measures in vogue are inadequate. He advocates bismuth in treatment of children as it can be given by intramuscular injection, while its action is prompt and apparently effectual.

Brazil-Medico, Rio de Janeiro

1: 183-198 (April 5) 1924

*Familial Paratyphoid Epidemic. Amaury de Medeiros.—p. 183.
*Epidural Anesthesia. Barros Lima et al.—p. 186.

Paratyphoid B Epidemic.—The entire undernourished family of six members presented the same clinical picture, eighteen days after another member had returned home, sick, from another city, dying the tenth day. The paratyphoid B bacillus was cultivated from the blood or was agglutinated by the serum of all the seven. Tests of the drinking water were negative.

Epidural Anesthesia.—The anesthesia was complete in forty-two of the fifty-two cases described, and very nearly complete in the others. Most of the operations were for prostatectomy, and the injection was made on the seated patient. The operation was begun in ten minutes. This technic was found peculiarly advantageous for operations on the anus, perineum, lower rectum and external genitals.

1: 199-214 (April 12) 1924

*Peritonitis and Polyneuritis of Syphilitic Origin. Cardoso Fonte.—p. 199.
Systolic Murmur in Aortic Insufficiency. J. L. de Mesquita.—p. 203.
Treatment of Chalazion. E. Campos.—p. 204.
Ophthalmology in France in 1921-1922. Monbrun and Mascarenhas de Souza.—p. 205.

Peritonitis and Polyneuritis of Syphilitic Origin.—In Cardoso Fonte's case the abdominal pains and profuse effusion could not be traced to any factor except the old syphilis in the man of 40. Under vigorous mercurial treat-

ment, with iodid, the abdominal symptoms subsided, but intensely painful symmetrical polyneuritis followed. There was nothing else to suggest a toxic action from mercury as the cause of this polyneuritis, and he incriminates the syphilis for this also.

1: 215-228 (April 19) 1924

*Local Treatment of Puerperal Infection. P. Figueira de Mello.—p. 215.
Influenza on Shipboard. J. Drummond.—p. 218.
Case of Ulcerating Blepharitis. E. Campos.—p. 219.
Surgery in France in 1921-1922. Guelfucci.—p. 220.

Local Treatment of Puerperal Infection.—Figueira de Mello extols the advantages of an antiseptic powder for this purpose which is a mixture of chlorinated lime and sodium bicarbonate. He protests against the too often hopeless attitude in grave cases.

Gaceta Médica de Mexico, Mexico City

55: 687-814 (Dec.) 1923

*Respiration at High Altitudes. J. J. Izquierdo.—p. 687.
*Extinction of Foci of Plague. M. S. Iglesias.—p. 713.
Treatment of Ascites of Hepatic Origin. F. Bulman.—p. 723.
Examination of Neurologic Patient. A. A. Loaeza.—p. 733.
Tests for Glucose in Urine and Blood. J. M. Noriega.—p. 740.
Penal Code Forbids Experiments on Human Beings. F. Castillo Najera.—p. 747.
Glaucomatous Disturbance from Rapid Swelling of Senile Cataract. J. de Jesus Gonzalez.—p. 752.
Present Status of Forceps in Obstetrics. N. Leon.—p. 757.
Strictures in Bulbar Region of Urethra. German Diaz Lombardo.—p. 762.
Surgical Treatment of Convergent Squint. A. F. Alonso.—p. 765.
Bacteriology and Treatment of Alveolar Pyorrhea. T. G. Perrin.—p. 777.
The Work of the Public Health Service in the United States in Combating Venereal Disease. C. C. Pierce.—p. 783.

Maximum Respiratory Output.—Izquierdo found the maximum 4 liters in 200 healthy persons between 16 and 40, at the City of Mexico, altitude 2,240 meters. This is exactly twice the output found in France. The range was from 2,500 to 5,000 c.c. The development of the chest and the lung capacity did not seem to modify it.

Plague.—Iglesias declares that no instance is known of plague having been conveyed by land traffic in bales or other goods containing rats. Rats will not stay in freight that is handled much and jolted. There is no necessity for interfering with land traffic and antagonizing the public. For the same reason, he advises isolation of the sick in their homes rather than compelling them to go to a hospital. It is better to have all the sick isolated after a fashion than to have a few rigorously isolated and the rest hidden away from the authorities by their friends.

Deutsche medizinische Wochenschrift, Leipzig

50: 527-560 (April 25) 1924

*Vitamin B Deficiency and Beriberi. T. Ogata et al.—p. 527.
*Analgesic Action of Strontium. W. Alwens.—p. 529.
Vagotonia and Sympathicotonia. Veil.—p. 532. Begun p. 511.
Diagnosis of Typhoid Fever. H. Löhr.—p. 536.
Criticism of Rabbit Unit for Insulin. E. Laqueur.—p. 537.
*Action of Glycokinin. A. Gottschalk.—p. 538.
*Persistent Pregnancy Nephritis. Schilling and Gröbel.—p. 540.
Fat for Diabetics. R. Uhlmann.—p. 541.
Ophthalmology. Triebenstein.—p. 542.
Protection of Maternity in Russia. N. Semaschko.—p. 545. Conc'n, p. 581.

Comparison of Vitamin B Deficiency with Beriberi.—Ogata with four collaborators publish the results of their investigations on the differences between human beriberi (*kakke*) and the experimental avitaminosis produced in pigeons fed on polished rice. Ataxia and disturbances of the sensorium do not occur in human beriberi. Severe circulatory disturbances with acceleration of the pulse, hypertrophy of the heart, stasis and edemas, which are characteristic for beriberi, are never found in these animals. Lymphopenia and atrophy of lymphatic glands are very characteristic in animals. The lymphatic system is hypertrophied in beriberi. A hemorrhagic diathesis develops in animals but not in beriberi. They conclude that, besides a deficiency in vitamin B, other important factors are responsible for the human beriberi.

Analgesic Action of Strontium.—Alwens had very good results with strontium salts in starvation osteopathies. The pains were also favorably influenced. This induced Boruttau and Grassheim to study the analgesic effects of the metal. It does not anesthetize as thoroughly as magnesium. Intravenous injections of 10 c.c. of a 10 to 20 per cent. solution of strontium bromid gave very good results in gastric crises, neuritis, painful cancer metastases in bones, chronic arthritis and in the spasms of multiple sclerosis.

Action of Glycokinin.—Gottschalk found that glycokinin (extract, resembling insulin, from vegetables) increases the formation of acetaldehyd by surviving liver cells from warm-blooded animals.

Persistent Pregnancy Nephritis.—Schilling and Gröbel observed a case of typical pregnancy nephrosis (degenerative affection) with low pressure, 0.032 per cent. of nonprotein nitrogen in the blood, and 1 per cent. albumin in the urine. The patient died, nine weeks after delivery, in an eclamptic state.

Klinische Wochenschrift, Berlin

3: 705-768 (April 22) 1924

Influence of Kant's Ideas in Natural Science. Ziehen.—p. 705.
*Electrolytes in the Organism. F. Kraus et al.—p. 707.
*Abdominal Pain. F. Brüning.—p. 710.
*Acetaldehyd in Metabolism. A. Gottschalk.—p. 713.
*Calcium Metabolism and Action. W. H. Jansen.—p. 715.
*Trophic Ulcers. W. Lehmann.—p. 719.
*Insulin Treatment. C. von Noorden and S. Isaac.—p. 720.
Bacterial Synergism. H. Kämmerer.—p. 723.
*Physiology of Periarterial Nerves. H. Dennig.—p. 727.
*Periarterial Sympathectomy. O. Wiedhopf.—p. 728.
Idem. F. W. Kaess.—p. 729.
*Thrombopenia and Aleukia. S. Seeliger.—p. 731.
*Distribution of Electrolytes. F. Kraus et al.—p. 735.
*Electrolytes After Food Intake. E. Wollheim.—p. 736.
Electrolytes and Oxygen Metabolism. W. Arnoldi.—p. 737.
Suprarenal Hemorrhages. A. Brasser.—p. 738.
Treatment of Pancreatitis. L. Arnsperger.—p. 739.
Typhoid Epidemic in Celle. Sorge.—p. 742.
Typhoid Epidemic in Alfeld. W. Gottstein.—p. 743.
Insulin. H. Staub.—p. 746.
Micromethod for Sedimentation Test. Linzenmeier and Raunert.—p. 766.

Electrolytes in the Organism.—Kraus, Zondek, Arnoldi and Wollheim give a survey of their views on the significance of electrolytes in the body. The ions play an important part in low organisms before the vegetative nervous system develops. The predominance of potassium produces effects identical with those from vagus stimulation, while calcium has the action of the sympathetic. They increase to a maximum or reduce to a minimum the existing functions of the cells, for example, lactic acid production in muscles. The nerve impulse changes, according to their views, primarily, the constellation of electrolytes. This, in turn, causes changes of hydration which is already a phenomenon of action of the cell. This brings, for instance, the glycogen into contact with the ferment, which splits it into lactic acid. Electrolytes influence the permeability of the surface systems and the electric charge of proteins. They can accelerate or delay the fatigue of muscles. Their mutual relation determines the basic attitude of the cell to stimuli, and is probably important for the constitutional peculiarities of the whole organism. Digitalis does not act without calcium, and the muscle action of guanidin is inhibited by it. The examination of the body fluids does not give the correct idea about the distribution of ions, though there are differences. Diminution of blood calcium is not the cause of tetany—just as azotemia is not a cause of nephritis.

Abdominal Pain.—While not denying the existence of Head's zones, Brüning emphasizes the fact that the pain in abdominal affections is localized deep in the epigastrium and not in the skin. Its site corresponds to the celiac plexus. Only when the parietal peritoneum is affected, is the pain localized correctly. The upper spinal segments for the parietal peritoneum begin in the thoracic part of the cord and may be irritated directly in pulmonary affections. Hence, the frequent abdominal pain in pneumonia in children which has led to many harmful laparotomies. The pain from distention of the bowel is usually localized correctly because of the mechanical irritation of the parietal peritoneum. He mentions Läwen's diagnostically valuable investigations with paravertebral injections of procain: Pains originating in the duodenum and pyloric region disappear after infiltration of the sixth to the eighth dorsal segment on the right side.

Affections of the lesser curvature require supplementary injections on the left side. The gallbladder, the bile duct and probably the liver become painless after anesthetizing the right ninth to eleventh thoracic nerves.

Acetaldehyd in Metabolism.—Gottschalk reviews the work of Neuberg's school on the formation of acetaldehyd in metabolism. Glycogen seems to be one of its important sources. Lack of oxygen prevents its formation except from pyrotartaric acid.

Calcium Metabolism and Action.—Jansen was unable to increase, for any length of time, the normal calcium level of the blood. Subnormal concentrations were well influenced by administration of calcium salts in any way.

Trophic Ulcers.—Lehmann observed hyperthermia of the entire lower extremity after freezing of the external popliteal nerve, just as it was observed after excision of the neuroma on the central end of a divided nerve. He believes that this hyperemia accounts for the healing of ulcers after extirpation of the neuroma.

Insulin Treatment.—Von Noorden and Isaac recommend periods of five or six days with from 120 to 150 gm. proteins, much fat and no carbohydrates. Small doses of insulin are sufficient to prevent acidosis. The period is followed by a carbohydrate day. It sometimes happens that the patient suddenly becomes comparatively refractory to the action of insulin, requiring possibly threefold doses with the same diet. They interrupt the treatment in these cases for a few weeks.

Physiology of Periarterial Nerves.—Dennig found no vasodilator fibers nor sensory nerves in the adventitia of femoral arteries of dogs.

Periarterial Sympathectomy.—Wiedhopf compares the effects of periarterial sympathectomy on the circulation with those from anesthetization of nerves. Anesthesia of the brachial plexus produces the same changes in the arm (vasodilatation, hyperthermia) as extirpation of the cervical sympathetic. Such changes do not occur after extirpation of the adventitia. The nerves for the vessels are contained in the mixed nerves and cannot be interrupted, except for the local segment, by Leriche's operation.

Thrombopenia and Aleukia.—Seeliger found in essential thrombopenia in only one half of the extirpated spleens an increased number of blood platelets. This may signify an increased phagocytosis. In two necropsies he confirmed the increase in the number of megakaryocytes in the bone marrow. Yet these cells were evidently affected: The protoplasm was without granules from which platelets could form.

Distribution of Electrolytes.—Kraus, Wollheim and Zondek found more water in the musculature of the auricle of the frog heart than in the ventricle. In spite of this, it contains more potassium and calcium. The susceptibility of the ventricle for these ions is, according to Zondek and Jacobs, greater than that of the auricle. The irritated pneumogastric nerve contains them in greater quantity than does the control.

Electrolytes After Food Intake.—Wollheim found a slight increase of the potassium-calcium ratio in the blood of the portal vein during alimentary leukocytosis in dogs. After subdiaphragmatic resection of the vagi, leukopenia and inverse shifting of the ratio were observed.

3: 769-816 (April 29) 1924

*Derangement in Hormone Function. R. Ehrström.—p. 769.
Constitutional Differences in Infants. C. Coerper.—p. 772.
*Standard Roentgen Unit. H. Küstner.—p. 774.
*Pituitary Secretion. P. Trendelenburg.—p. 777.
*Tuberculosis and Nutrition. H. Selter.—p. 779.
*Intraperitoneal Blood Infusion. H. Opitz.—p. 784.
*Blood Pressure in Different Areas. P. Fischer.—p. 784.
Infected Abortion. Joseph and Sachs.—p. 786.
Treatment of Claw-Foot. R. Scherb.—p. 787.
Determination of Albumin and Globulin. Knipping and Kowitz.—p. 788.
Specific Viscosity of Serum. F. Rietti.—p. 788.
"Percussion and Auscultation." Fröschels and Stockert.—p. 788.
*Glycolytic Action of Cancer. A. Braunstein.—p. 788.
*Action of Calcium. F. Günther and W. Heubner.—p. 789.
Encephalitis of Rabbits. E. Ilert and F. Jahnel.—p. 790.
Action of Serum on Heart. A. Tscherkess.—p. 790.
Penetrating Ulcer of Greater Curvature. Sommer.—p. 791.
*Stomach Function Tests. L. R. Grote.—p. 792.
Sterilization of Defectives. K. Bonhoeffer.—p. 798.
"Butter-Flour Mixture" in Diabetic Diet. Offenbacher and Uhlmann.—p. 815.

Derangement of Hormone Function.—Ehrström believes that certain poisons act by binding hormones and paralyzing their action. It seems probable that the destruction and new formation of hemoglobin, which is estimated at 12.5 gm. daily, is regulated by a hormone. Extremely small quantities of Seyderhelm's oestrin (0.08 mg.) kill a horse. Still smaller doses produce a grave anemia, which may be due to paralysis of a hormone which regulates the erythropoiesis.

Standard Roentgen Dose.—Küstner reports on the first results of standardization of the roentgen dose. Behnken was able to obtain an absolute physical measure of the ionization of air under a pressure of ten atmospheres. The fundamental unit dose is defined in clear physical terms, and is called 1 roentgen (R). This solution of the problem of an absolute roentgen unit allows a testing of dosimeters: Kienböck's quantimeter gives differences up to 89 per cent. which inevitably would sometimes entail burns. The standard apparatus is to be kept at Göttingen.

Pituitary Secretion.—Trendelenburg tested with Deusch and Miura the action of cerebrospinal fluid from cats on the surviving uterus of rats and guinea-pigs. The fluid produced strong contractions even when diluted fivefold. Its activity was much lowered in a few hours after extirpation of the pituitary gland. Thus he confirms Dixon's results in every respect except in the strength of the actions. One c.c. of cerebrospinal fluid in his experiments corresponded only to $\frac{1}{35,000}$ mg. of fresh tissue of the posterior lobe (against Dixon's 0.2-2 mg.).

Tuberculosis and Nutrition.—Selter discusses statistics of tuberculosis in the years 1913-1922. He believes that sufficient food for the people is the most important weapon in the campaign against tuberculosis.

Intraperitoneal Blood Infusion.—Opitz recommends intraperitoneal infusions of about 150 c.c. of defibrinated blood in anemic infants. The corpuscles are well resorbed.

Blood Pressure in Different Areas.—Fischer found differences of blood pressure in the arms even when they were measured simultaneously. There was no constant predominance of the same side in the same individual. Patients with hypertension showed especially high differences.

Glycolytic Action of Cancer.—Braunstein observed an increased sugar tolerance in diabetics with cancer. The glycosuria reappeared after extirpation of the tumor. He published in 1921, in a Russian journal, his experiments on the glycolytic action of cancer cells in vitro.

Action of Calcium.—Günther and Heubner found in experiments on perfused frog hearts that not only calcium ions, but also nonionized calcium molecules, have the specific action. The significance of the actual concentration of calcium ions is overestimated.

Stomach Function Tests.—Grote reviews the stomach function tests. He confirms the importance of eosinophils in the stomach contents; though they are not pathognomonic, they warrant a suspicion of cancer.

Medizinische Klinik, Berlin

20: 555-588 (April 27) 1924

Growth of Cancers. F. Blumenthal.—p. 555.
*Insufflation of Fallopian Tubes. A. Dührssen.—p. 558.
*Treatment After Operations on the Stomach. G. Singer.—p. 559. Conc'n.
*Nicotin and Duodenal Syndrome. F. Wagner.—p. 562.
*Diagnosis of Syphilitic Arthritis. F. Eisler.—p. 565.
Tumors of the Trachea. G. Claus.—p. 567.
Paratyphoid B Infection. K. Gaube.—p. 569.
Bismuth Treatment in Syphilis. W. Engelhardt.—p. 570.
*Blood Cholesterol in Arteriosclerosis. Pribram and Klein.—p. 572.
Practical Gynecology. E. Runge.—p. 574. Cont'n.
Some Rare Affections of the Skin. F. Pinkus.—p. 576.
Social Insurance. Wreschner.—p. 586.
Legal Aspects of Medicine. F. Thomas.—p. 587. Conc'n.

Insufflation of Fallopian Tubes.—Dührssen has no objections to insufflation of the tubes during a laparotomy for determination of the site of the obstacle, or after a salpingostomy to keep the tube open. Otherwise, the danger of rupturing an ectopic pregnancy must not be underestimated.

Treatment After Operations on the Stomach.—Singer gives rectal infusions of Ringer's solution after operations on the stomach. Lavages of the stomach are necessary in persisting pains and vomiting. Ice pills only fill the stomach with water and prolong the vomiting. The heart should be treated preliminary to the operation. Raising the pelvis high in the ventral recumbent position may cure an arteriomesenteric occlusion. The best treatment of postoperative peptic ulcer in the jejunum consists in lying on the right side during, and for an hour after, the meal. The duodenum is physiologically stimulated in this position and the bile precipitates the pepsin.

Nicotin and Duodenal Syndrome.—Wagner insists that all the subjective and roentgenologic signs of duodenal ulcer can be produced by excessive use of tobacco.

Diagnosis of Syphilitic Arthritis.—Eisler considers syphilitic periosteitis, with deposits of bone on the diaphysis and lack of atrophy, as very valuable signs of syphilitic arthritis. Some of the affected joints show no roentgenologic changes. The success of the treatment decides the differential diagnosis.

Blood Cholesterol in Arteriosclerosis.—Pribram and Klein found an increase in cholesterol in the serum in the large majority of patients with hypertension.

Münchener medizinische Wochenschrift, Munich

71: 491-538 (April 18) 1924

*Immunity by Fertilization. A. Bier.—p. 491.
*Action and Volume of Muscles. F. Schultze.—p. 494.
*Digitalis and the Blood Vessels. G. Ganter.—p. 497.
*Hypertonic Solutions and Diuresis. E. Becher.—p. 499.
Transportation and Metabolism of Body Elements. Arnoldi.—p. 502.
*Function Tests. L. R. Grote.—p. 504.
One Hundred Gastroscopies. H. Hohlweg.—p. 506.
Dermatosis and Diathesis. H. W. Siemens.—p. 508.
*Trophic Skin Lesions. V. Dumpert.—p. 511.
Function and Bone Growth. W. Kohlrausch.—p. 513.
*Intravenous Treatment of Varices. K. Linser.—p. 515.
Appliance for Flatfoot. H. Jordan.—p. 516.
*Malignant Roentgen Ulcers. G. Tillmann.—p. 516.
Fibrous Pericarditis. R. Bittrolff.—p. 517.
The Kant Tercentennial. K. E. Ranke.—p. 519.
Disturbances of Metabolism. F. Umber.—p. 524.
Development of Body and Mind in Children. H. Paull.—p. 526.

Immunity by Fertilization.—Bier grows, every year, large numbers of trees for his forests. His observations on the vitality of the seeds convinced him that fertilization immunizes the cell against infection and autolysis. He believes that immunologic research should start at the fertilization processes.

Action and Volume of Muscles.—Schultze reviews critically the relation between the functioning of muscles and their hypertrophy and atrophy. He points out that the superior auricularis muscle is not in action in the majority of subjects, and yet it does not atrophy.

Digitalis and the Blood Vessels.—Ganter found after strophanthin injections a decrease in the tonus of many of the blood vessels, especially the arteries of the skin and intestines, and of the tonus of the intestinal musculature. Instillation of the drug into the eye decreased accommodation. He concludes that the digitalis type of drugs act directly on the plain muscles. The opposite results obtained by other authors in experimental research are due to the large amounts of morphin and strophanthin they used.

Hypertonic Solutions and Diuresis.—Becher studied the diuresis after injections of hypertonic solutions of salts, urea, its derivatives and sugars. Hydremia occurred only when the solutions were injected intravenously. Even then it was not constant with urea and especially with trimethylurea, which is easily soluble in lipoids. The less lipoid-soluble the substance, the more pronounced, as a rule, the hydremia, which may be due to osmosis. The diuretic action of subcutaneous injections is proportional to their lipoid solubility. A lowering of the viscosity of blood cannot account for the diuresis. The elimination of nitrogen was not inhibited by the elimination of sodium chlorid in healthy animals. Urea, phosphates, sulphates, but not sodium nitrate, lower the elimination of sodium chlorid. Diuresis eliminates the diuretic substance, water and sodium chlorid in larger amounts, the concentration of the salt in the urine getting nearer to its plasma level. Nitrogen is also slightly increased. Creatinin, uric acid, sulphates and phosphates are not increased.

Function Tests.—Grote admits that many of the functional tests enable us to determine a partial function. Extremely few can, however, be used for estimation of the actual value of the organ for the whole organism. The overproduction of such methods—especially chromodiagnosis—is sufficient evidence of their low value. He demonstrates the small significance of acidity of the stomach for the general nutrition.

Trophic Skin Lesions.—Dumpert shows that many of the alleged trophic changes of the skin after affections of the nervous system are due to mechanical causes. Hypertrichosis and changes in the nails are caused by the absence of rubbing.

Intravenous Treatment of Varices.—Linser treats varicose veins by direct injection into the vein of 2 c.c. of a 30 per cent. solution of alcohol or from 5 to 10 c.c. of a 15 or 20 per cent. solution of sodium chlorid. This injures the intima and causes a solid thrombosis. Consequently he saw no embolism, although he made the injections frequently in working patients.

Malignant Roentgen Ulcers.—Tillmann used Läwen's intracutaneous injection of the patient's own blood around a grave roentgen-ray ulcer. The results were excellent. The fluid has to be injected to form a complete ring around the ulcer, at a distance of about an inch from the lesion.

Wiener klinische Wochenschrift, Vienna

37: 407-430 (April 24) 1924

*Sudden Natural Death. A. Haberda.—p. 407.
*Drainage of Peritoneal Cavity. L. Schönbauer.—p. 412.
*Etiology of Erythema Nodosum. B. Coglievina.—p. 413.
Uterine Fibroids. K. Fleischmann.—p. 414.
Syphilis in Maternity Hospitals. E. Klaften.—p. 417.
Cancer of Thyroid. G. Holzknecht.—p. 419.
Semeiologic Significance of Diaphragm. Hitzenberger. Supplement.—pp. 1-20.

Sudden Natural Death.—Haberda reviews the results of necropsies performed in ten years (1910-1919) on 11,000 persons who had died suddenly. In 125 the fatality proved to be due to poisoning. It was surprising to find lobar pneumonia and meningitis in subjects who were not confined to bed. Affections of the heart and aorta were very frequent. Brain tumors were found in thirty-one necropsies.

Drainage of Peritoneal Cavity.—Schönbauer found the peritoneal exudate, sometimes even twenty-four or thirty hours after a perforation of the appendix, sterile. Drainage is useless, because the drain gets closed. Only when it is impossible to remove the source of infection, the necrotic tissue should be shut off from the peritoneal cavity and drained.

Etiology of Erythema Nodosum.—Examination of tonsils, fluid from the nodules and blood, convinced Coglievina that erythema nodosum is a mild form of scarlet fever.

Zentralblatt für Chirurgie, Leipzig

51: 775-822 (April 12) 1924

Improved Methods in Pelvic Surgery. R. Goepel.—p. 776.
Causation of Jejunal Peptic Ulcer. T. Naegeli.—p. 785.
Loose Osteoma in Ankle. H. Hilgenreiner.—p. 787.
*Complications Caused by Ascarids. E. Haim.—p. 790.

Complications Caused by Ascarids After Operations on the Gastro-Intestinal Tract.—Within three months Haim has observed two and presumably three cases in which fatal complications have been caused by ascarids. One woman, aged 47, died in three days after resection by Billroth I method for ulcer on the lesser curvature. Necropsy disclosed peritonitis, the suture was gaping at one point, with a hole the size of one's thumb. In the open peritoneal cavity there was a large ascarid; in the stomach and intestine a large number. A woman, aged 59, was convalescing normally after resection of a malignant cecal tumor. The eighth day she became worse and died the ninth. Here, too, peritonitis, a gaping suture, and an ascarid in the peritoneal cavity were found. Another woman, aged 44, died the sixth day, with signs of ileus after a gastro-enterostomy. At necropsy no peritonitis was noted but the stomach was distended; the

efferent loop had collapsed, with torsion of 180 degrees. An ascarid was found in this loop. Haim holds that it is not superfluous before performing such operations to examine the patient's stool for parasites.

Casopis lekaruv ceskych, Prague

63: 653-688 (April 26) 1924

*The Left Auricle in Mitral Stenosis. S. Mentl.—p. 653.
Ovarian and Uterine Cycle. J. Trapl.—p. 663. Conc'n.
Ureter Calculi. J. Rejsek.—p. 676. Conc'n.

Left Auricle in Mitral Stenosis.—Mentl frequently observed pains in the right half of the intervertebral space in extreme dilatations of the left auricle. The rotation of the heart (which is chiefly due to the hypertrophy of the right ventricle) may be so marked that roentgenoscopy reveals the left auricle at the right border of the heart. There is a paravertebral dulness in these prognostically unfavorable cases.

Hospitalstidende, Copenhagen

67: 193-208 (March 26) 1924

*Complement Fixation in Tuberculosis. T. Hansen and C. H. Würtzen.—p. 193. Conc'n.

Complement Fixation in Pulmonary Tuberculosis.—Hansen and Würtzen obtained a positive reaction with Besredka's antigen in 37.9 per cent. of 106 patients in the first stage of pulmonary tuberculosis; also in 71 per cent. of forty-nine in the second stage, and in 84.4 per cent. of 185 in the third stage.

67: 209-224 (April 2) 1924

Blood Count from Different Vascular Areas. E. Rud.—p. 209.

67: 225-240 (April 9) 1924

*Blood Pressure in Normal Persons. A. Faber and E. Mackeprang.—p. 225. Begun p. 217.
Squill in Heart Disease. I. Freuchen.—p. 234.

67: 241-256 (April 16) 1924

Cultivation of Tubercle Bacilli on Petroff's Substratum. M. Kristensen and K. A. Jensen.—p. 241.
Recklinghausen's Disease in Young Woman. A. Portman.—p. 251.

The Blood Pressure in Normal Subjects.—Blood pressure measurements in 1,000 normal men between 20 and 25 showed a wide range, from 90 mm. mercury to 160 mm. in different persons. Repeated measurements demonstrated further that the pressure increases with increasing weight. This seems to be a physiologic endogenous phenomenon.

Ugeskrift for Læger, Copenhagen

86: 307-330 (April 10) 1924

*Malaria Treatment of General Paralysis. V. Askgaard.—p. 307.
Health Insurance in Norway. J. H. Berner.—p. 325.

Malaria Treatment of General Paralysis.—Askgaard reports complete restoration of earning capacity in 32.4 per cent. of thirty-seven cases and great improvement with partial restoration in 21.6 per cent. The disease has progressed in 3 per cent. and in 6 per cent. after a transient remission. Excluding the patients who were treated mainly for the purpose of keeping the malaria strain alive, the apparently cured total 38.6 per cent. and the improved, 26 per cent., a total of 65 per cent. benefited since the malaria treatment was introduced in October, 1922.

86: 331-350 (April 17) 1924

*Experimental Transformation of Sex Characters. Pézard, Sand and Caridroit.—p. 331, p. 351 and p. 369.
Composition of Venous Blood with Circulatory Disturbances. III. C. Schwensen.—p. 332.
*Swallowed Shawl Pin. J. Fabricius-Møller.—p. 338.
Heredity of Diabetes. S. Hansen.—p. 341. Idem. E. Meulengracht.—p. 357. Reply. S. Hansen.—p. 374.

Experimental Modification of Sex Characters.—Pézard, Sand and Caridroit give an illustration of a rooster castrated at the age of 3 months and, a year later, grafted with ovary implants from a hen of the same Leghorn species. The male sex characters began to retrogress, even the tail and other feathers showing the transformation to the female type. In a later communication, on page 351, they describe unilateral transformation of sex characters, rooster feathers on one side and hen feathers on the other side.

Swallowed Shawl Pin.—Fabricius-Møller insists on roentgen-ray examination at once when a child has swallowed a large headed pin. If the pin can be seen working its way downward, expectant treatment is justified. But if it sticks in one place, it must be removed at once, even if it is not causing symptoms. In one of three cases described, an operation for acute appendicitis, a year after the pin had been swallowed, revealed it projecting from the appendix at a right angle. He knows of another case of the kind. In one case the pin caught in the duodenum, and although the head was downward, the tip had injured the wall of the bowel during the two weeks since it had been swallowed. Outside of the duodenum and the appendix, it is extremely rare that a pin with a large head fails to pass off through the natural route.

86: 351-368 (April 24) 1924

Vacuum-Formaldehyd Sterilizer. S. A. Gammeltoft.—p. 353.
*Inherited Idiosyncrasy to Antipyrin. I. Freuchen.—p. 355.
*Vitamin Treatment of Xerophthalmia. O. Blegvad.—p. 356.
*The Ty Reflex. F. Thalwitzer.—p. 358.

Inherited Idiosyncrasy to Antipyrin.—Freuchen has recently encountered two cases, in an infant and in a woman.

Xerophthalmia and Vegetables.—Blegvad insists that vegetables do not contain the proper vitamins to combat xerophthalmia. It grew worse in one infant given, in addition to its previous food, cabbage, beans and carrots for eleven days. It vanished in less than three days when a pint of whole milk was given daily with a teaspoonful of cod liver oil.

The Ty Reflex in Infants.—This is an arbitrarily coined word to express the general reflex movement noted when a very young infant is suddenly startled or irritated. This intense reflex seemed so purposeless that Thalwitzer puzzled over it for twenty years. Then he found the complete explanation when he saw a mother monkey shot. The infant monkey grappled its mother's body in its fright. The young of monkeys and human infants are carried during the first three months of life, and in any fright they turn to and cling to the mother. The ty reflex is this instinctive movement to grapple the mother's body.

86: 369-382 (May 1) 1924

Iron in Chlorosis. C. Gram.—p. 370.
*Abscess from Injection of Insulin. A. Friedlænder.—p. 373.

Abscess Under Insulin Treatment.—Friedlaender relates that three patients developed severe necrotic abscesses at the point of the insulin injections. The drug was all from the same package, and the lesion did not seem to be a bacterial infection.

Upsala Läkareförenings Förhandlingar, Upsala

29: 165-344 (April 25) 1924

*Bathrocephaly and Clinocephaly. G. Backman.—p. 165.
Septum Pellucidum and Verga's Ventricle. G. Backman.—p. 215.
*Shifting of Relative Position of Heart. G. Backman.—p. 241.
Supernumerary Half Vertebra. G. Backman.—p. 249.
Variations in Height Day and Night. G. Backman.—p. 255.
*Cesarean Section. P. Häggström.—p. 283.
*A Profilometer. G. Dahlberg.—p. 335.
Trochoscope for Roentgen Work. S. Arnell and H. Laurell.—p. 339.

Bathrocephaly and Clinocephaly.—Backman's study of the comparative anatomy of these types is from the atavism standpoint.

Embryology of the Heart.—Backman theorizes to explain the embryologic caudad shifting of the relative position of the heart.

Cesarean Section.—Häggström analyzes seventy cases of abdominal cesarean section. They formed 0.4 per cent. of the 15,868 deliveries at the Upsala maternity since 1890. The outcome was better with cesarean section than with prophylactic version, high forceps or vaginal cesarean section.

A Profilometer.—Dahlberg gives illustrations of the gage with a series of plungers, like a Yale lock, which he has devised for study of twins and heredity in general. Each plunger has a sharp point at right angles to the lower end. When the plungers are all resting against the profile the set is locked, between the two axial bars. Laid on paper, the pricks from the points outline the profile.